The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[*The* MINING JOURNAL *is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.*]

No. 2622.—VOL. LV. LONDON, SATURDAY, NOVEMBER 21, 1885. PRICE ..... SIXPENCE. BY POST, £1 4s. PER ANNUM.

MR. JAMES H. CROFTS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING STOCKS and SHARES (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.

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500 Albion Gold.	100 Hoover Hill.	20 Phœnix United.
100 Akankoo, fully paid.	50 Home Mines Trust.	20 Panulcillo.
50 Almada (New).	100 Indian Consolidated.	50 Prince of Wales.
20 Bedford United.	50 Javali.	50 Pestarena.
100 Balkis.	25 Killifreth.	10 Rio Tinto.
20 Birdseye.	25 Kim. North Block.	50 Ruby (New).
30 Bratsberg.	100 Kohinoor B.	25 Richmond.
50 Carn Camborne.	200 La Plata.	20 Roman Gravels.
100 Callao Bis, 17s. paid.	30 La Trinidad.	20 Schwab's Gully.
100 Cartago, fully paid.	25 Leadhills.	150 Shepherd United.
50 Columbian Hydrau.	200 Lisbon-Berlyn (New).	100 Spitzkop.
20 Cape Copper.	25 Marke Valley.	30 South Condurrow.
75 California.	10 Mason-Barry.	50 South Darren.
25 Colorado.	50 Montana.	50 Tacquah.
50 Chontales.	50 Mysore Gold.	50 Tambracherry.
10 Copiapo.	70 New Chile, 18s. paid.	20 Tolima A.
20 De Beer's.	100 Nacupai.	30 ditto B.
200 Denver.	50 New Caradon.	50 Transvaal Gold.
50 Devala Moyar.	50 New Emma.	30 Trevaunance.
20 Devon Consols.	20 New Kitty.	50 United Mexican.
100 Devon Friendship.	50 Nouveau Monde.	20 Van.
15 Dolcoath.	50 New West Caradon.	120 Victoria Gold.
50 Drakewalls.	100 Nundydroog.	30 Violeta.
50 East Blue Hills.	80 Nine Reefs.	200 Wentworth, fully pd.
120 Eberhardt.	50 Ooregum.	20 West Basset.
20 East Lovell.	do. Pref.	10 Wheal Grenville.
25 Ecton.	50 Organos.	20 Wheal Agar.
5 El Callao.	50 Orita.	20 Wheal Basset.
100 Frontino.	50 Oscar.	50 West Caradon.
100 Frongoch.	50 Oscar Vendors', fully paid.	20 West Polbreen.
100 Gold Hill.	75 Par Tin, offer wanted.	20 West Kitty.
50 Glenrock.	20 Polberro.	50 Wheal Coates.
10 Great Laxey.	50 Potosi (New).	25 Wheal Crebor.
25 Gennis. (Clitters).	100 Port Phillip.	25 Wheal Kitty.

*** BUSINESS at CLOSE PRICES in all marketable TIN, COPPER, LEAD, GOLD, SILVER, and DIAMOND SHARES.
*** SHARES SOLD for the USUAL FORTNIGHTLY SETTLEMENT.
*** SHARES SOLD AT SPECIAL PRICES FOR FORWARD DELIVERY (ONE, TWO, or THREE MONTHS) ON DEPOSIT OF TWENTY PER CENT.
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THE RISE IN INDIAN GOLD SHARES.—SPECIAL BUSINESS.

Devala Moyar.	Mysore.	Ooregum.
Glenrock.	Nine Reefs.	Ooregum Preference.
Indian Consolidated.	Nundydroog.	Tambracherry.

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Shares Sold for Fortnightly Account.
Shares Sold for Forward Delivery (one, two, or three months) on deposit of twenty per cent.

JAMES H. CROFTS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
No. 1, FINCH LANE, LONDON, E.C.
ESTABLISHED 1842.
LONDON BANKERS.—THE CITY BANK.
Address for Telegrams—"CROFTS, LONDON."

BRITISH AND FORIEGN MINING OFFICES.
MESSRS. PETER WATSON AND CO.,
STOCK AND SHARE DEALERS,
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OLD BROAD STREET, LONDON, E.C.
BANKERS: THE ALLIANCE BANK (Limited).
The British and Foreign Mining News for November, No. 882, is now ready, and will be sent to customers, on application.
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MR. ALFRED E. COOKE, STOCK AND SHARE DEALER,
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(NEARLY 19 YEARS IN OLD BROAD STREET.)
TELEPHONE No. 10,338.

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60 Almada, 6s.	25 Home Mines Trust, 14s.	50 Oscar, 7s.
20 Balkis, 4s.	30 Indian Consolidated, 14s.	45 Oscar, vendors.
19 Bratsberg, 15s.	20 La Plata, 6s. 6d.	50 Potosi, 4s.
100 Cartago, f.pd., 3s.	10 Leadhills, £2 6s. 3d.	40 Prince of Wales, 8s 9
40 Colom. Hyd., 9s.	20 Mason & Barry, 10s.	10 Rio Tinto, £12½.
1 Cape Copper, £29	20 Montana.	30 Ruby, 11s. 3d.
100 California, 4s. 9d.	25 Mysore Gold, £3 11 3.	10 Richmond, £4¾.
10 Colorado, £3 3s. 9d.	70 New Chile, 6s. 9d.	40 Russell Gold, 10s. 9d.
50 Denver, 1s. 6d.	20 New Emma, 7s. 6d.	5 Schwab's Gul., £3 7 6
30 Devala Moyar, 6s. 9d.	50 New Lisbon, 4s. 3d.	26 South Darren, 9s.
5 Devon Con., £2½.	100 Nouveau Monde, 3s 9d	10 Silver Queen.
20 East Blue Hills.	50 New W. Caradon, 8s.	10 Uni. Mexican, £3⅝.
15 Ecton, £1¼.	35 Nundydroog, 21s.	20 Van, 32s.
1 El Callao, 5¼.	80 Nine Reefs, 8s.	50 Victoria Gold, 3s. 9d.
20 Frontino, 18s.	40 Ooregum, 13s. 6d.	10 Violetta, 27s.
50 Glenrock, 6s. 6d.	10 Organos, 27s. 6d.	5 West Kitty.
5 Great Laxey.	15 Orita.	25 Wheal Crebor, £1 11 3
50 Hoover Hill, 9s.		

1886.—SPECIAL BUSINESS for middle or end of JANUARY account on deposit of TEN PER CENT.
BUSINESS TRANSACTED at CLOSEST CURRENT PRICES, FREE of COMMISSION, in all STOCK EXCHANGE SECURITIES either for SPECULATION or INVESTMENT.
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ESTABLISHED 1853.
BANKERS: ROYAL EXCHANGE (Limited), London.

MR. JAMES STOCKER, STOCKBROKER,
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Has Special Business in the following for cash or settlement by arrangement free of commission:—

75 Albion, New, 27s. 6d.	90 Glenrock, 6s. 3d.	80 Potosi (New), 4s. 3d.
70 Almada, New, 6s.	30 Great Laxey, £9½.	60 Prince Royal, 4s. 6d.
400 Akankoo, 2s.	60 Home Mines, 13s. 6d.	50 Prince of Wales, 7s. 6
200 Balkis.	60 Hoover Hill, 8s. 9d.	30 Richmond, £4¾.
40 Bratsberg, 15s.	100 Ind. Consoli., 14s.	20 Roman Gravels, £4 1s
50 Birdseye.	75 Javali, 3s.	70 Ruby, 11s. 9d.
60 Cartago, 2s. 3d.	45 Killifreth, 12s. 6d.	30 Rio Tinto.
100 Californian, 4s. 6d.	50 Kohinoor B, 1s. 9d.	100 Russell Gold, 10s. 6d.
80 Callao Bis, 11s. 6d.	50 La Plata, 7s.	35 Silver Queen.
45 Carn Camborne, 2s. 6	30 Leadhills, £2¾.	20 Schwab's Gully, £3 7 6
75 Chile Gold, 6s. 9d.	80 Lisbon-Berlyn, 3s. 9d.	60 Spitzkop, 15s. 3d.
100 Chontales, 2s.	30 La Trinidad, £4¼.	80 Tocopilla, 6s. 6d.
50 Colombian, 9s. 9d.	40 Montana, £2⅞.	20 Tolima, A.
25 Colorado, £3¼.	50 Mysore Gold, £3½	30 Trevaunance.
25 Devon Consols, £2¾.	75 Nouveau Monde, 3s 9	100 Tambracherry, 7s. 9d.
70 Devala, 6s. 9d.	60 Nundydroog, 20s. 6d.	25 United Mexican, £2¼
100 Denver, 1s. 5d.	60 New Emma, 6s. 3d.	40 Violeta, 26s.
3 El Callao.	100 Nine Reefs, 8s.	40 Van, 33s.
30 East Blue Hills, 32s 6	80 Orita, 33s. 9d.	50 Victoria Gold, 3s. 9d.
150 Eberhardt, 3s. 9d.	45 Organos, 28s. 6d.	30 West Godolphin, 22s.
100 Ecton, 24s.	35 Oscar Gold, 7s.	30 West Kitty.
55 Frontino, 17s. 6d.	150 Oregum, 13s. 9d.	60 W. Metal & Flow.
	40 Panulcillo, £3 10s. 6d.	

ESTABLISHED 1851.
BANKERS: LONDON AND WESTMINSTER.

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ESTABLISHED 28 YEARS.

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ALL BUSINESS DONE AT NET PRICES FOR CASH, ACCOUNT, OR FORWARD DELIVERY.
SELLERS and BUYERS should send FIRM ORDERS at once.
CLOSING PRICES, FRIDAY, 20TH NOVEMBER, 4 P.M.

	Buyers.	Sellers.		Buyers.	Sellers.
Almada	£ 0 5 0	£ 0 6 0	New Potosi	£ 0 3 6	£ 0 4 6
Bratsberg	0 12 6	0 15 0	New Chile	0 6 0	0 7 0
Balkis	0 0 0	0 0 0	New Albion	1 5 0	1 10 0
Callao Bis	0 10 0	0 12 0	New Emma	0 6 6	0 7 6
California	0 4 0	0 5 0	New Kitty	1 10 0	1 15 0
Colombian	0 8 0	0 9 6	Nine Reefs	0 7 6	0 8 0
Colorado	3 0 0	3 5 0	Oscar, vendors	0 4 0	0 5 0
Cartago, f. p.	0 2 0	0 3 0	Oscar, fully pd.	0 5 0	0 7 0
Devala	0 6 0	0 7 0	Orita	1 7 6	1 12 6
Devon Consols	2 7 6	2 12 6	Organos	1 5 0	1 7 6
Ecton	1 2 6	1 7 6	Ooregum	0 12 0	0 14 0
East Blue Hills	1 10 0	1 15 0	Do Pref.	0 10 0	0 12 6
Frontino	0 15 0	1 0 0	Prince of Wales	0 8 0	0 9 0
Glenrock	0 6 0	0 7 0	Prince Royal	0 4 0	0 5 0
Home M. Trust	0 12 0	0 14 0	Ruby	0 10 0	0 12 6
Hoover Hill	0 8 0	0 9 0	Roman Gravels	4 0 0	4 10 0
Indian Consol.	0 13 0	0 14 0	Rio Tinto	11 17 6	12 2 6
Killifreth	0 11 0	0 13 0	Russell Gold	0 9 6	0 11 6
Lisbon Berlyn	0 3 6	0 4 6	Shepherds Uni.	0 0 0	0 0 0
La Trinidad	3 10 0	4 0 0	Schwab's Gully	3 2 6	3 7 6
Leadhills	2 2 6	2 7 6	Transvaal Gold	0 4 0	0 5 0
La Plata	0 5 6	0 6 6	Untd. Mexican	3 2 6	3 7 6
Mason & Barry	9 15 0	10 0 0	Victoria	0 3 0	0 4 0
Mysore	3 7 6	3 12 6	Van	1 7 6	1 12 6
Montana	0 0 0	0 0 0	West Kitty	8 0 0	8 10 0
Nundydroog	0 19 0	1 1 3	Wheal Crebor	£ 7 6	1 11 3
Nouv. Monde	0 3 0	0 4 0	Wheal Metal	0 13 0	0 15 0

INVESTORS should send for BEAZLEY and CO.'S LIST of CLOSEST PRICES, published every Wednesday, which will be forwarded on receipt of STAMPED DIRECTED ENVELOPE.

BEAZLEY AND CO. are enabled by their extensive connection and long experience to afford their clients full advantage in BUYING and SELLING MINING SHARES.

INDIAN GOLD MINES.—BUYERS and SELLERS can obtain close prices from BEAZLEY AND CO.

INVESTMENTS.—BEAZLEY AND CO. BUY and SELL Three Per Cent. CONSOLS, ENGLISH, FOREIGN, and AMERICAN RAILWAYS, FOREIGN and COLONIAL STOCKS, BANK and MISCELLANEOUS shares at closest prices FREE OF COMMISSION.
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Shares supplied for FORWARD DELIVERY on BEST POSSIBLE TERMS.
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METALS—FRIDAY, 4 P.M.—TIN, £94 5s. 0d. to £94 15s. 0d.; COPPER, £43 2s. 6d. to £43 10s. 0d.; LEAD, £12; IRON, 43s. 6d.
BEAZLEY AND CO., 6 AND 7, COLEMAN STREET LONDON, E.C.

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[Established at this Address in 1867.]

BUSINESS transacted in ALL STOCK EXCHANGE SECURITIES, MINING and MISCELLANEOUS SHARES of every description.
An INVESTMENT LIST free on application.

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100 Almada, 6s. 3d.	250 La Plata, 7s.	100 Oscar Gold, 7s.
25 Birdseye.	20 Mysore, £3 11s. 3d.	70 Prince Royal, 5s. 6d.
120 Balkis Cons.	10 Mason & Barry.	100 Prince of Wales.
10 Carn Brea.	50 Montana, £2 18s. 9d.	40 Panulcillo, £3¾.
200 Chontales, 3s. 6d.	30 New Albion.	5 Rio Tinto, £12¼.
15 Copiapo, £3 11s. 3d.	50 New Kitty, 35s.	10 Richmond, £5.
5 Cape Copper, £29½.	150 New Chile, 7s. 3d.	50 Spitzkop, 16s.
100 California, 4s. 6d.	50 New Ruby, 12s. 6d.	100 Transvaal Gold 4s. 6d.
150 Callao Bis.	100 New Emma, 8s.	30 Trevaunance, 47s. 6d.
300 Cartago.	75 New Hoover Hill, 9s 3	50 United Mexican.
25 Colorado, £3 6s. 3d.	100 New Lisbon, 4s. 6d.	45 Van, 33s. 9d.
25 Devon Con., 56s. 3d.	300 New Potosi, 4s. 6d.	100 Tocopilla, 7s. 3d.
100 Denver, 1s. 6d.	100 Nine Reefs, 8s. 3d.	50 Wentworth Gold, 5s 3
500 Eberhardt, 4s.	50 Nundydroog, 20s. 6d.	10 West Kitty, £3½.
20 East Blue Hills.	200 Nouveau Monde, 4s.	50 W. Godolphin, 27s. 6
50 Frontino, 16s. 9d.	150 Nacupai.	100 West Polbreen.
150 Glenrock, 6s. 9d.	100 Ooregum, 13s. 6d.	5 Wheal Agar.
40 Great Holway.	50 Organos, 30s.	10 Wheal Grenville.
100 Indian Cons., 14s. 3d.	25 Orita,	

Where prices ARE NOT INSERTED offers may be made.
WHEAL GRENVILLE and WEST GODOLPHIN shares recommended.
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Mr. BUMPUS devotes SPECIAL ATTENTION to LEGITIMATE MINES, and is in a position to afford reliable information and advice to intending investors, and others in the selection of Shares either for INVESTMENT or SPECULATION. Correspondence invited.
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INDIAN GOLD MINES.—Considerable dealings will continue to take place.
For special information and close prices apply to Mr. HENRY J. TALLENTIRE.
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Sellers and Buyers of Mining Shares will receive prompt attention.
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Refers to his Share Market Report on page 1327 of to-day's Journal.

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BANKERS, and DEALERS in STOCKS and SHARES.
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IT CONTAINS the latest prices of Stocks and Shares, and also shows at a glance the return per cent. of all the leading Securities.
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EAST BLUE HILLS and PRINCE ROYAL.—Specially recommended for investment.
ESTABLISHED 1860.
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DE BEER'S DIAMOND MINING COMPANY'S SHARES.—Last Dividend declared, 6s. per share for the quarter ending September 30, being at the rate of about 25 per cent. per annum on the present price. The Company is doing extremely well, and can be highly recommended to investors, as the prospects are exceptionable.
For full particulars apply to A. JONAS, Stock and Sharebroker, 31, Holborn iaduct. Telephone 6615. Telegraphic address—Softa.

INVESTORS, CAPITALISTS, TRUSTEES
SHOULD READ OUR MID-NOVEMBER CIRCULAR (No. 453), which contains important information regarding the movements of the Stock Market. The anticipations therein given have in almost every instance proved to be correct. Special information on Home and Foreign Securities, Grand Trunks, Mexicans, and Americans. Selections also given of sound, high-class, Dividend-paying Securities for investment. Circular post free on application.
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STOCKBROKERS,
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TANGYES LIMITED, CORNWALL WORKS, BIRMINGHAM.

DEPOTS AT

LONDON: 35, Queen Victoria Street. NEWCASTLE: St. Nicholas Buildings. MANCHESTER: Deansgate. GLASGOW: Argyle Street. (No. 139.)

TANGYES'

LATTICE GIRDER OVERHEAD TRAVELLER

For use with Cherry's Patent Crab.

This Traveller comprises:—

Wrought-iron Lattice Girder.
A two-wheeled Carriage at each end.
Longitudinal Travelling Gear.

Span in feet.	35	40	45	50	55	60
Tested to 1 ton						
2 ,,						
3 ,,						
4 ,,						
5 ,,						
6 ,,						
7 ,,						
8 ,,						
10 ,,						
12 ,,						

Quotations on receipt of necessary particulars.

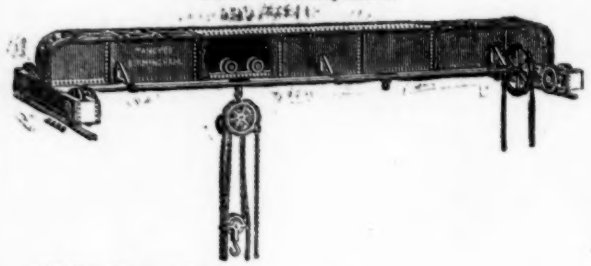
For particulars of Cherry's Patent Crab, which is recommended for use with this Traveller, see below. 105

TANGYES'

BOX GIRDER OVERHEAD TRAVELLER

WITH RUNNER.

For use with Pulley Blocks.



This Traveller comprises:—

A Wrought-iron Box Girder.
A two-wheeled Carriage at each end.
Runner to support Blocks.
Longitudinal Travelling Gear.

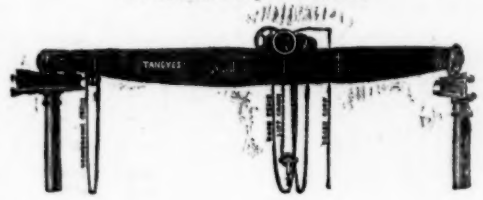
Span in feet.	15	20	25	30	35	40
Tested to 1 ton						
1½ ,,						
2 ,,						
2½ ,,						
3 ,,						
4 ,,						
5 ,,						
6 ,,						

Quotations on receipt of necessary particulars. 106

TANGYES

DOUBLE PLATE GIRDER TRAVELLER

For use with Cherry's Patent Crab.



This traveller comprises:—

Two Wrought-iron Girders.
A two-wheeled Carriage at each end.
Longitudinal Travelling Gear.
A "Cherry's" Patent Brake Crab.

Span in feet.	10	15	20	25	30
Tested to 1 ton	£17	£22	£48	£63	£78
2 ,,	19	25	50	65	81
3 ,,	24	31	58	75	92
4 ,,	39	47	74	91	110
5 ,,	43	53	81	98	115
6 ,,	53	76	91	106	125
8 ,,	83	102	112	136	160
10 ,,	98	115	135	145	165

For intermediate spans take the mean between size above and below.
In ordering state height of lift for Chains. 107

TANGYES'

SINGLE GIRDER OVERHEAD TRAVELLER

WITH RUNNER

For use with Pulley Blocks.

This Traveller comprises:—

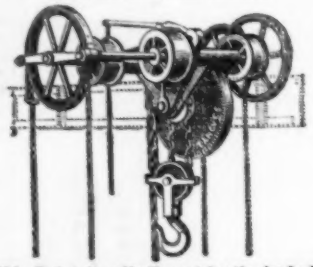
A Single Wrought-iron Girder.
A two-wheeled Carriage at each end.
Runner to support Blocks.

Span in feet.	12	14	16	18	20
Tested to 1 ton	£13 0	£13 10	£14 0	£15 0	£16 0
2 ,,	16 0	17 0	18 0	19 0	20 0
3 ,,	20 0	21 0	22 0	24 0	25 0
4 ,,	26 0	27 0	28 0	29 0	30 0

The Block shown in illustration is not included in price. 108

CHERRY'S PATENT BRAKE CRAB.

TANGYES LIMITED, SOLE MAKERS.



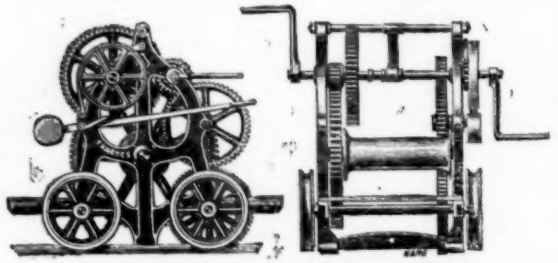
The Brake on this Crab automatically sustains the load when the motive power is entirely removed, without increasing the resistance during lifting. The friction necessary for this purpose is obtained from, and is in exact proportion to, the load itself.

In lowering, the pressure so produced is relieved by a lever to the extent necessary to allow the weight to descend at any desired speed. This device, however, does not prevent the load being gently lowered by pulling the hand chain in the direction reverse to that of lifting.

Tested to	Price Crab.	Price Lifting Chain.	Price Hand Chain.	Price Traverse Chain.	Size Lifting Chain.
1 ton	£7	9d. per ft.	7d. per ft.	...	3/16 in.
2 ,,	9	10d. ,,	7 ,,	...	3/16 ,,
3 ,,	15	11d. ,,	7 ,,	7d. per ft.	1/4 ,,
4 ,,	23	1/3 ,,	8 ,,	8 ,,	5/16 ,,
5 ,,	28	1/3 ,,	8 ,,	8 ,,	5/16 ,,
6 ,,	36	1/6 ,,	8 ,,	8 ,,	3/8 ,,
7 ,,	42	1/6 ,,	8 ,,	8 ,,	3/8 ,,
8 ,,	50	2/3 ,,	9 ,,	9 ,,	7/16 ,,
10 ,,	58	2/3 ,,	9 ,,	9 ,,	7/16 ,,
12 ,,	75	3/- ,,	10 ,,	10 ,,	1 ,,
14 ,,	85	3/- ,,	10 ,,	10 ,,	1 ,,

No Traverse Chain is required with 1 and 2 ton sizes.
Length of Hand and Traverse Chains is twice the height of lift.
,, of Lift Chain is twice the height of lift plus 4 ft. 110

TANGYES' OVERHEAD TRAVELLER CRAB.



CRAB WITH BRAKE AND WOOD PLATFORM.

No.	To test to, with Single Sheave Block	Weight.	Price.	Brass Bushing.
1	4 tons	17 cwts.	£27	£1 17 6
2	6 ,,	20 ,,	31	2 7 6
3	12 ,,	29 ,,	38	3 0 0

LONGITUDINAL TRAVELLING GEAR & TWO GANTRY CARRIAGES.

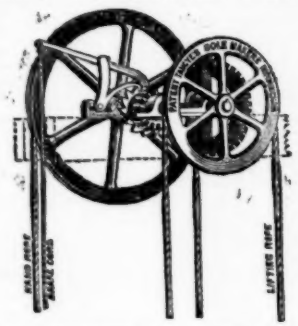
For use with above.

No.	Price.	Weight.
1	£13 10	11 cwts.
2	16 10	15 ,,
3	19 10	18 ,,

111

TANGYES'

HAND WAREHOUSE HOIST.



In this Hoist the lifting rope runs on a grooved pulley of large diameter—the balance weight hanging on one end of this rope and the cage on the other. Keyed on same shaft as the grooved pulley are the brake and spur wheels—the spur wheel being driven by a pinion keyed on the shaft of the hand rope wheel.

Tested to	Price.	Lift rope per foot.	Hand rope per foot.
5 cwts.	£12	4d.	4d.
10 ,,	15	6d.	4d.
15 ,,	25	9d.	4d.

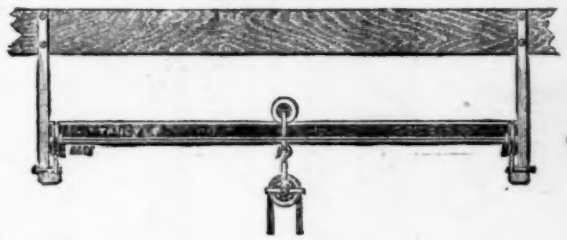
The 5 and 10 cwt. sizes are single gear.
The 15 cwt. size is double gear.
Cage, Balance Weight, and Guides, not included in above prices.
Quotations on receipt of necessary particulars. 104

TANGYES'

SINGLE GIRDER OVERHEAD TRAVELLER

WITH RUNNER

For use with Pulley Blocks.



This Traveller comprises:—

Wrought-iron Girder.
A two-wheeled Carriage at each end.
Runner for Pulley Block.

Tested to	Price for 10 feet span.	Add for each foot extra span.	Add for each foot Longitudinal Traverse.
10 cwts.	£10	10/-	5/-
12 ,,	12	12/-	6/-

This Traveller is not made of longer span than 16 feet.
Pulley Block is not included in price. 109

Copyright.—Entered at Stationers' Hall.

ONE man can EASILY tip ANY WEIGHT in these wagons.

Copyright.—Entered at Stationers' Hall.

R. HUDSON'S

Patent Steel Trucks, Points and Crossings,

PORTABLE RAILWAY, STEEL BUCKETS, &C., &C. GILDERSOME FOUNDRY, NEAR LEEDS.

Patented in Europe, America, Australia, India, and British South Africa, 1875, 1877, 1878, 1881, and 1883.

N.B.—The American, Indian, Australian, and Spanish Patents on Sale.

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TELEPHONE No. 14, LEEDS EXCHANGES.

23.—PATENT TRIPLE CENTRE SIDE TIP TRUCK.

One man can tip any weight with ease.

Upwards of 25,000 of these Trucks and Wagons have been supplied to the South African Diamond Mines; American, Spanish, Indian, and Welsh Gold, Silver, Copper, and Lead Mines; Indian and Brazilian Railways, and to Railway Contractors, Chemical Works, Brick Works, and Coal and Mineral Shippers, &c., &c., and can be made to lift off the underwork, to let down into the hold of a vessel, and easily replaced. They are also largely used in the Coal and other Mines in this country, and are the LIGHTEST, STRONGEST, and most CAPACIOUS made, infinitely stronger and lighter than wooden ones, and are all fitted with R. H.'s Patent "Rim" round top of wagons, requiring no rivets, and giving immense strength and rigidity. End and body plates are also joined on R. H.'s patent method, dispensing with angle-irons or corner plates.

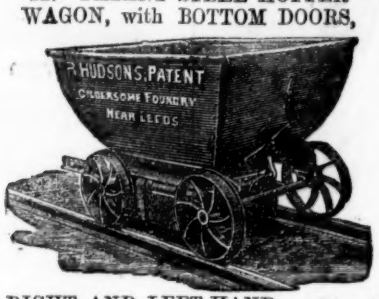
17.—SELF-CONTAINED TURNTABLE,
Requiring no Foundations.

1.—PATENT STEEL END TIP WAGONS.

7.—PATENT STEEL MINING WAGONS.

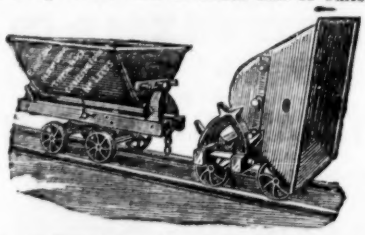
8.—PATENT DOUBLE-CENTRE STEEL SIDE TIP WAGONS.
Will tip either side of Wagons.

12.—PATENT STEEL HOPPER WAGON, with BOTTOM DOORS,

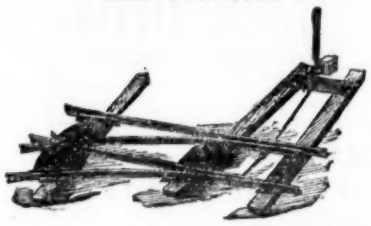


13.—PATENT STEEL HOPPER WAGON.

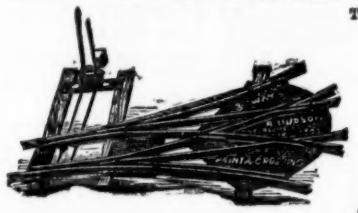
2. PATENT UNIVERSAL TRIPLE-CENTRE STEEL TIPPING TRUCK,
Will tip either SIDE or either END of rails.



10.—LEFT-HAND STEEL POINT AND CROSSING.



11.— RIGHT AND LEFT-HAND STEEL POINT AND CROSSING.

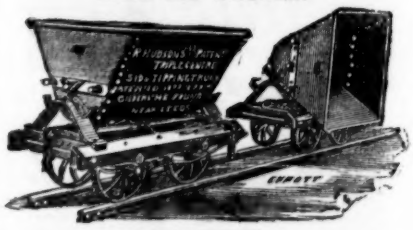


14.—SELF-RIGHTING STEEL TIP BUCKET.
The "Catch" can also be made self-acting if desired.

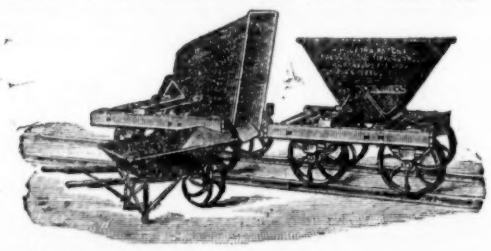
15.—R. HUDSON'S Patent Steel Cage and "Fallers," &c., complete.

One man can EASILY tip ANY WEIGHT in these wagons.

3.—PATENT TRIPLE-CENTRE STEEL SIDE TIP WAGONS.



24.—R. H.'s PATENT BALANCED END TIP



4. -PATENT STEEL PLATFORM OR SUGAR CANE WAGON.

18.—"AERIAL" STEEL WINDING TUB.

Largely employed in the South African Diamond Fields.

16.—PATENT STEEL WHEELBARROWS.
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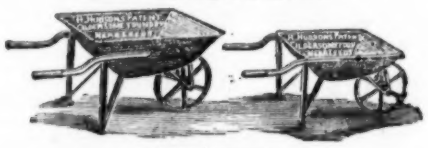
Lightest and Strongest in the Market.



A great success.

19.—PATENT STEEL CHARGING BARROW.
Double the strength and lighter than ordinary Barrows.

5.—PATENT STEEL CASK.
As supplied to H.M. War Office for the late war in Egypt).
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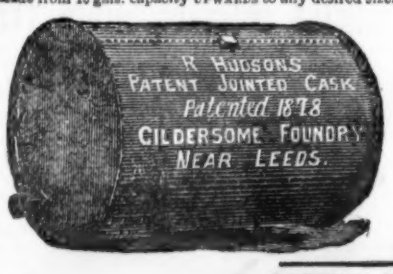
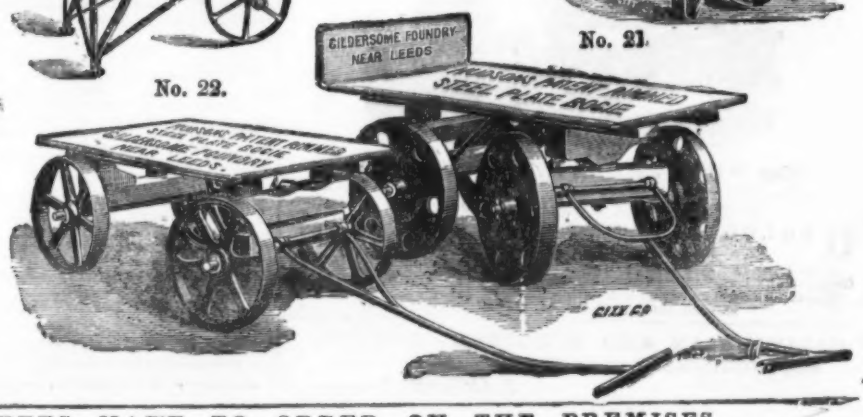


25.—PIG-IRON BARROW,
R. H.'s Patent

No. 22.



No. 21.

6.—ROBERT HUDSON'S
PATENT IMPROVED IRON SMITH'S HEARTH,
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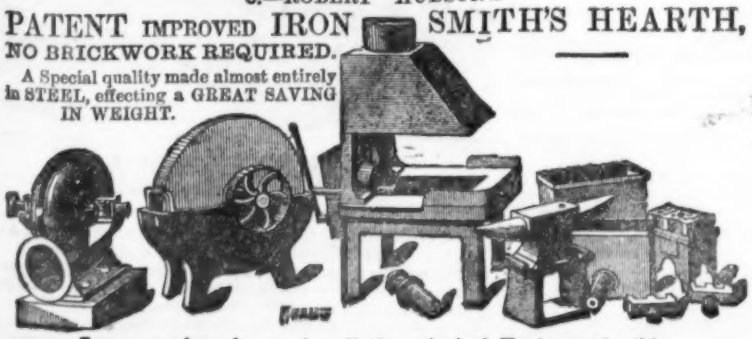

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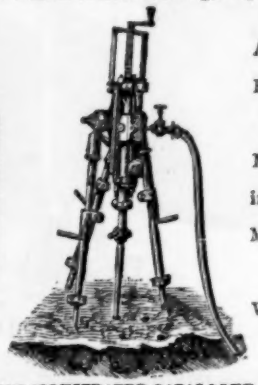

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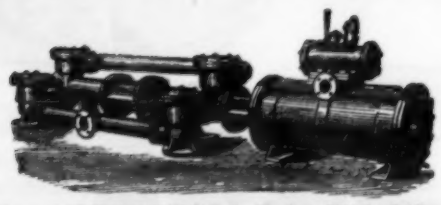

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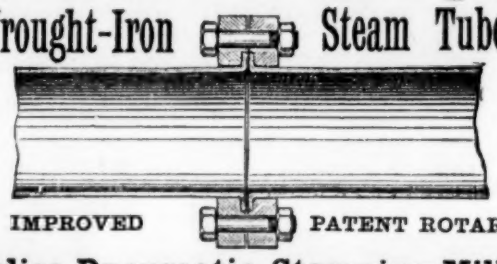

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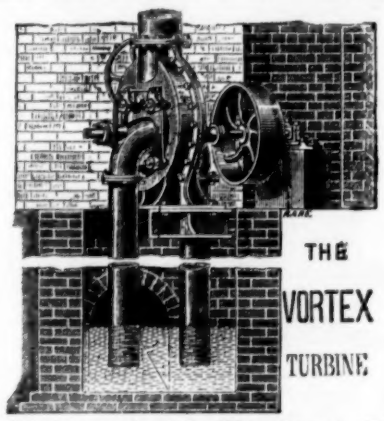

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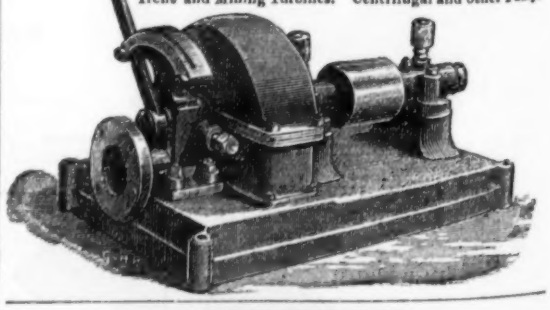

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Original Correspondence.

MINING IN THE UNITED STATES OF COLOMBIA—A MINE WITH $50,000,000 RESERVES.

SIR,—Noting that large sums of money are continually being subscribed in this country for working silver and gold mines in Venezuela, India, Mexico, &c., a good many of them "wild cat affairs," I would beg to draw the attention of your readers and mining men generally to the immense mineral resources of the U.S. of Colombia. Having had five years' experience of the country I can with confidence state that its wealth is not surpassed by any country in the world, while it has many important advantages over most other mining districts—abundance of very cheap and good labour, water power and timber, very favourable mining laws, and scarcely any competition. There is no country that offers better, if equal, opportunities for the investment of capital in mining, and there is an abundance of properties to select from which, with a comparatively small amount of working capital, under good practical management, will prove certain successes. It will be of interest if I give a few particulars of some of the mines at present in work or about to be worked; and I have selected the following from those I have a personal knowledge of:—The Zancudo Mine, the Frias Mine of the Tolima Company, the North Tolima Company's Mines at Calamonte, the Maria and Rocio Mines recently discovered in the Frias district, the Organos Company's Mines now giving good returns, and the Silencio Gold Mines, about to be worked, and the Orita and the Colombian Hydraulic Mines. The first in importance at the present time is undoubtedly the great Zancudo Mine. I give below a translation of a recent report by Mr. Ildefonso Gutierrez de Lara, the manager, which demonstrates amongst other facts that the mine under notice contains in sight the enormous amount of $50,000,000 of reserves. Some years ago this mine was offered to an English firm, who sent out their engineer to inspect. His report was unfavourable, because, forsooth, the lode had not the right dip—in other words, because the lode was a nearly flat one. In consequence of this report this grand mine has been lost to the English public. At that time it could have been bought very cheap, while now a wealthy American (U.S.) company is about to pay $2,000,000 for one-half, and intend working it in connection with a miners' bank, to be established at Medellin, and the railway connecting that city with the navigable River Magdalena. It is contemplated to put up the most modern and complete machinery and plant for treating the immense ore bodies, and to complete the railway. The enterprise is a most magnificent one, and does credit to the sagacity of its promoters. It has often been the case with our sharp American cousins that they have palmed off on our British public their used-up concerns, and it speaks volumes in favour of Colombia that they are turning their attention to its mines, when their own country has such rich properties to select from. They have certainly secured the richest mine discovered in modern times in Colombia, though I have no doubt there are others of equal value, which will come to light ere long. It behoves our English capitalists, who generally are the pioneers, to take their share in opening the vast riches of the country, and profiting thereby; and I am sure that after a careful perusal of the facts and figures that follow they will be satisfied that there is no fairer field for mining enterprise and the investment of capital than in the hills of the country under notice.

I see by your list that the prices of shares in some of the mines are at a very low figure just now, notably Oritas and Colombian Hydraulics, owing, no doubt, to the poor returns made during the year; but it should be borne in mind that these two properties have suffered, perhaps more than any, by the revolution; the situation being almost the centre of military operations their men were continually being taken. The two concerns are of the best description, with unlimited ranges of auriferous gravel before them, well supplied with water, and efficiently equipped and managed, while the amounts of capital are very moderate. Any further information required I shall be pleased to give to persons requiring the same on applying to me by letter.—*Aberystwith.* JAMES G. GREEN, M.E.

TRANSLATION OF A REPORT BY MR. ILDEFONSO GUTIERREZ DE LARA ON THE MINES AND WORKS OF THE ZANCUDO COMPANY.

In the district of Titiribi, State of Antioquia, U.S. of Colombia, on the south bank of the valley formed by the River Amaga, about 8½ miles from its outlet into the River Cauca, at a height of 1137 metres (about 3410 ft.) above the sea level, is situated the Zancudo Mine, the superficial area of which is 2,088,000 square metres. In the same district of Titiribi, which has an extension of about 90 square miles, there are many other rich gold and silver mines. Close to, inexhaustible beds of coal of very superior quality, and immense deposits of clay, clay marl, and sandstones, affording excellent material for construction purposes; timber in abundance, and fine streams of water with high falls to utilise for motive power, &c. All these mines are bounded on the north and south by the Rivers Amaga and Simfana respectively, on the west and east by the River Cauca and the Cordillera called Pueblito appertains to the Zancudo Company, with the exception of the mine called Otra Mina, which is owned by a family named Toro, and one-half of the Chorros Mine, which belongs to Mr. Almador (see plan of the mines). The climate in this district is very healthy; the medium temperature in the localities where the principal works are situated is 23° Centigrade. In the higher parts of the Cordillera it goes down to about 10°, and on the banks of the Cauca, Amaga, and Simfana it rises to 30°—therefore there are all the intermediate temperatures. The population of Titiribi amounts to about 10,000 inhabitants, partly employed in working of the mines, of which they are very fond, and partly in agriculture, thus supplying abundant provisions, and at low prices. These people are all robust, healthy, and intelligent; of good habits and morality, and exceedingly laborious. Foreigners are very much respected here as well as in all parts of this country, and the legislation favours them in a high degree.

This district is only 30 miles from Medellin, which is the capital of the State of Antioquia, and has extensive relations in Europe and the United States. It has 40,000 inhabitants, and for wealth and commerce is the second city in Colombia. Of the 30 miles distance from Titiribi 14 miles, at least, is covered by a good cart-road, and it would not be very costly to continue this road the remaining 16 miles, or to lay down a tramway the entire distance, which would allow of the transmission and sale of large quantities of coal in the capital at exceedingly remunerative rates. Later on, by the railway now in course of construction to the River Magdalena (the principal means of communication between the coast and the interior of Colombia), large quantities of coal can be shipped, the steamers on the river alone consuming considerable quantities.

From Titiribi to Quibdo, on the River Atrato (which flows into the Caribbean Sea), there is a distance of 90 miles. At present, there is a road in a tolerably good state, which, when it is finished, will allow the introduction of all material required for the works to better advantage than it is done at present through Barranquilla and the River Magdalena. The ground has been surveyed with a view to making either a cart-road or tramway from Titiribi to Quibdo. It will not exceed 90 miles in length, and does not offer any engineering difficulties, or costly works, and no tunnels will be required. A concession has been granted to a company which has the privilege of this road, and owns very extensive and fertile lands conning the road. With this company negociations might be made for the transport of materials, or, perhaps, for the purchase of the concern, &c.

The present mining legislation of Antioquia is decidedly protective, being surrounded by privileges and favours which no other industry enjoys. See the Mining Code of Antioquia for 1868, which has since been modified, with a view of still further encouraging mining. This is due to the fact that the mining industry is the principal wealth of the State.

Of the mines which the Zancudo Company owns in Titiribi only four are actually working, as follows:—Zancudo, Los Chorros, El Ensenillal, and El Cuteador. The latter mine produces gold only; the precious metal being extracted by stamping and washing. The sands, which are washed by the waters, carry away as much gold as is saved, or one-half of the total contents. By improving on our primitive system of working, magnificent results would be obtained from this mine alone.

The Ensenillal Mine produces only silver. The veins or lodes are narrow, but rich, and are reduced at the smelting-works of Sitioviejo. The expenses of working this mine are high, owing to the want of pumping machinery. At present the mine is kept clear of water by manual labour. With pumps, and a good cart-road, which can be easily made, this mine would stand very well, and good profits realised, owing to the richness of the minerals, which in some cases have reached $40 per quintal, or $300 per ton.

As regards the Zancudo and the Chorros minerals they are taken respectively to the smelting-works at Sabaletas and Sitioviejo, where they go through an adequate metallurgic treatment, which is the same for both minerals. The only difference between these minerals is that the Chorros produces from 3 to 4 per cent. of gold in proportion to the silver, and the Zancudo from 7 to 8 per cent.; therefore, what will be said here about Zancudo and Sabalito is equally applicable to Chorros and Sitioviejo.

The lowest level at present of the works at Zancudo Mine has been obtained by means of a cross-cut called Suere, which reached the lode about two years ago after 14 years' constant work. This Suere tunnel drains and facilitates the extraction of a zone of mineral which by itself is worth more than $25,000,000, as will be seen by the following:—

The length of this zone of mineral from the mouth of the Suere up to the forebreasts of the tunnels called Chaverra and Palenque, a space where the lode or vein is well explored and proved, is at least 1000 yards in extension (3000 ft.). Its width, which is the distance between the tunnels Suere and Rosario, equally explored and proved, is 360 ft. The thickness of the vein in some places reaches 14 ft. and 16 ft., in others only 8 ft., and very rarely 2 ft. Taking 4 ft. as the very lowest average for the entire zone here described we shall under-estimate the reality. Calculating the above figures the result is 4,320,000 cubic ft. of mineral contained in the zone in question. Now, each cubic foot of mineral as it lies weighs at least 2 quintals, and each quintal of this same mineral is proved by repeated assays and results to average $1·20, and, consequently, the value of the mineral comprehended in this zone is $10,368,000, and it is developed by the above-mentioned tunnels, Suere and Rosario.

But as we have lately discovered a new lode which joins the old one at Rosario, known by name of Pazneuva, which is no less in extension, thickness, and richness than the old mine, and is as yet untouched, it is evident that that part of it which lies between the above-mentioned tunnels Rosario and Suere, is equal in value to the section or zone of the old lode described, or $10,368,000.

Further, the zone of the old mine, which lies above the Rosario tunnel, is of far greater extension and richness than the others above mentioned, and, as it has more than half its minerals untouched, although they are proved and developed, and are now in course of being wrought, it will be a low estimate if we put it down at half the above, say, $5,184,000. Adding these three sums we get at a total value of $25,500,000, more or less, for these parts of the mine Zancudo, which are well known and proved from the tunnel Suere upwards, a value which can be seen, touched, and verified by any mining man making careful inspection and measurement of the tunnels, veins, and communications.

Leaving aside these calculations, which are easily made, the following facts clearly prove that these estimates are not exaggerated, as at first sight would appear when talking about so many millions. In the 22 years that the undersigned has had the general management and direction of the company, during which time only a part of the minerals in the zone from the tunnel Rosario upwards have been worked he has sent to the company in Medellin 3876 bars of auriferous silver, valued at $3,582,391
245 bars of gold 608,925

$4,191,316
Premium of exchange at 25 per cent. 1,047,828

Total value $5,239,144

Owing to the imperfection of our apparatus and the system of elaboration we employ, 1 lb. of the precious metals is washed away by the waters for every pound we extract. Therefore, the above $5,239,144 in bars extracted in my time only represents one-half of the value of the mineral treated; the full value is $10,478,288. This has been proved by repeated assays.

Comparing now the comparatively small section of ground which has produced these $10,500,000 with the large sections laid open (and as yet untouched, and still remaining to take away at Rosario) by the deep level Suere, and it will be readily understood that there exists a value of at least treble the sum named.

The company being convinced that this great quantity of minerals cannot be extracted even in 25 years, however much they might develope their reduction work, determined to open another and deeper cross cut tunnel to reach the lode in about 20 years' time (calculating on manual labour only being used), and thus have a new reserve of mineral prepared when those of the Suere upwards be exhausted. This cross cut tunnel, known as the Troy, will drain the mine at a level of 150 ft. below the Suere, and will facilitate the extraction of mineral in a zone 360 ft. high (the lode or vein being very flat) by an almost indefinite length. The value of this immense quantity of mineral, a powerful company, employing modern appliances, such as rock drills, &c., to complete the Troy tunnel quickly, might realise in a much shorter period of time than can be hoped for by our primitive methods. The tunnel at present is in 30 ft., and the estimate of the minerals that it will lay open below the Suere cannot be put at a lower figure than that given above—another $25,000,000 in round numbers.

We have, therefore, the following figures. Beginning with the tunnel Suere upwards, the mine has $25,000,000 worth of mineral that can be seen as often as anyone pleases, and from the Suere downwards there are at least other $25,000,000 which cannot be seen like the preceding, but which exists without a shadow of a doubt, and which will be proved and demonstrated by the cross cut tunnel Troy, the cost of which will be relatively small.

Nothing need be said of the contents of the vein below the level of the Troy, nor of the minerals from the Chorros Mine and other places, which are reduced at Sitioviejo, and with the present appliances produce from $30,000 to $40,000 per annum. Since the colossal figures of the Zancudo eclipses all the other mines in significance and importance, the rest are simply annexations, the ownership of which is, however, of great value to the company, since we are now free from competing neighbours, who later on might give us great trouble in the matter of water power, timber, labour, &c. We are now sole and absolute masters of the position.

REDUCTION WORKS AT THE ZANCUDO MINE.

Let us now pass to the elaboration and reduction of the minerals. As the minerals come out of the mine they go first to be classified. The richest of them selected by hand, are called scheiderz, and sent direct to the smelting works; the remainder which are poorer are crushed in the mills. Of 58,000 quintals (2900 tons) of minerals which are extracted monthly (on an average) from the Zancudo Mine 2500 quintals (125 tons) are scheiders, or selected mineral for smelting, of which a sample goes forward in two bags marked each No. 1. The remaining 55,000 quintals are treated in the mills. The half of the Chorros mine give 800 quintals of scheiderz mineral and 17,200 quintals of mill mineral.

To crush or triturate the mineral we employ 191 stamps of the 206 which the company has in work. These 191 stamps are divided among 19 mills, moved by as many hydraulic wheels and distributed thus:—

13	mills in Zancudo with	133	stamps.
5	„ Los Chorros.....	49	„
1	„ Catedor	9	„
	Total.....	191	

In the process of trituration the minerals throw out the free gold, and it is caught by blankets. By this means 30 lbs. of gold per month are obtained.

The sands produced afterwards passed through a long series of settling boxes, where they are classified according to their density, &c., and are afterwards concentrated in adequate apparatus, viz.:—German percussion tables, of which there are 14 in work and producing concentrated sands containing 50 per cent. of rich pyrites, the remainder being quartz, &c. Of the concentrated pyrites called jaguas, the Zancudo mine produces 6000 quintals monthly (300 tons). The assay value of the 58,000 quintals produced monthly by the Zancudo is..... $69,600

Of this we only avail of the following—

2500 picked scheiderz, at $6 per quintal,		$15,000	
6000 jaguas.....	2·60 „	15,600	
Gold from the mills		4,400	35,000
Diff. loss.....			$34,600

This loss $34,600 monthly is caused by the defective apparatus, the water carrying it away in the 45,500 quintals of sands, and these sands thus carried away are worth consequently about $16 to $20 per ton.

As you see we only obtain half of the value of the mineral, and can form an opinion what the profits of the mine would be providing improved and modern machinery were employed. If the process which is said to exist in California working minerals worth only $4 per ton could be applied here the business would be simply magnificent, since this process alone would double the produce of the mine from the same quantity of mineral that is at present being treated.

The scheiderz and the jaguas thus prepared are carried to the smelting works. The treatment here consists of the following operations:—

I. Calcination.—Whereby the humidity and a greater part of sulphur and arsenic are taken away, oxidising at the same time the iron from the pyrites. The furnaces 8 ft. by 8 ft. with chimney 30 ft. high. There are 16 in work, all more or less of the same dimensions.

At a red heat these furnaces burn or calcine 30 quintals in 24 hours of jaguas apiece at a cost of 16 quintals of coal. These jaguas thus calcined lose 35 per cent. of their weight.

II. First Smelting or Roharbeit.—The calcined jaguas are mixed with raw scheiderz and slags and smelted in bigger furnaces (cupolas) at a white heat. Of these furnaces there are six in work and two building. They are similar to those used in Wales for copper smelting. They are 12 ft. by 8 ft., and chimney 60 ft. high. In 24 hours they smelt 6 tons of mixed ores (jaguas, scheiderz, slag, &c.) with an expense of 100 quintals of coke.

In this process the oxide of iron of the calcined pyrites is combined with scheiderz, quartz, and with the same jaguas to form slag of silicate of iron, which has sufficient fluidity to run out through the small door of the furnace, thus leaving the non-decomposed sulphide of iron which remains at the bottom of the furnace. This sulphide of iron smelted is called matte or rohlstein, and contains all the richness of the slagged minerals, which by means of this process are concentrated at the rate of one to four. The two bags marked No. 3 contain samples of this mineral called matte, or minerals concentrated by a first smelting.

This operation of the roharbeit or first concentration is executed with precision and almost perfection, and does not suffer any loss of precious metals.

III.—These mattes after they are pulverised and calcined in the same cupola furnaces where the jaguas are calcined are mixed also with scheiderz and slags from the same operation, are then smelted in another class of furnace 6 ft. high, with wooden blowers attached, driven by water-wheels—an entirely primitive machine. There are nine of these furnaces, five in constant work, and nearly all of the same size.

In this second process the oxide of iron of the mattes is combined with quartz, scheiderz, and slags, sufficiently fluid to run from the furnace itself. The matte that results out of the fusion of the sulphide of iron non-decomposed remains already very enriched at the bottom of the furnace, and then passes on to an outside deposit by means of an inclined channel in the furnace, which is opened at intervals as occasion requires. When the smelted matte falls in the chamber it meets with a mixture of lead and litharge in certain quantities placed there beforehand, all of which are smelted with the heat of the molten matte. The litharge being reduced by the sulphide of iron, together with the other lead in the deposits, and all well smelted in close contact to the high temperature of the molten matte, catches or combines with the greater part of the gold and silver therein contained, and is transformed into rich lead. The mattes thus impoverished are mixed with mattes of first concentration—rohistein—and together are treated as above described. This process is called here "imbibition," and is very imperfect and expensive, resulting in great loss of lead, gold, and silver. The estimated loss is rarely under 25 to 30 per cent. by this process alone.

IV.—The rich lead that results out of the imbibition is submitted to cupelation with fixed crucibles and movable furnaces (German system), of which the company have three. Their capacity is 25 quintals of lead, which can be increased as the process advances up to 50 or 60 quintals, with 1½ per cent. of gold and silver. It is known that by means of this process the lead is oxidised and separated from the precious metals, leaving the latter completely pure, to be smelted afterwards in graphite crucibles, and run into ingots of 25 lbs. each, which are assayed, weighed, marked, and sent to market. The cupelation is done pretty well, but always with a loss of from 4 to 8 per cent. of metal and lead. In spite of the losses which the minerals go through from the moment they come out of the mine, and notwithstanding the imperfection of our apparatus, and of the system of treating the minerals, the company is undoubtedly in a most flourishing state. During the last two months the produce has been $48,000 each month, and the like amount will be produced next month; but as during occasional months there is a falling off in the yield of the mineral, the average per month can be put at $ 45,000

Monthly, or yearly at	540,000
Expenses annually at the rate of $28,000 per month	336,000
Net profits yearly.....	$204,000

I think that this sketch of the Zancudo Mine will show what immense profits can be made by an energetic company, who would introduce all modern appliances and improvements.

Sabaletos, July 15. ILDEFONSO GUTIERREZ DE LARA.

P.S.—In my next I intend giving a sketch of the Frias Mines of the Tolima Mining Company (Limited) and other mines in its neighbourhood. JAMES G. GREEN.

CARTAGO.

SIR,—In your last issue a letter appeared over the signature of "Pangloss." The writer of that letter can hardly be a shareholder, or he would know that the amount of money subscribed by those who are willing to take up debenture bonds has not yet reached the figure which would justify the directors in going to allotment. This is to be regretted, seeing that the last report from Mr. Skertchley, the manager, states that the crushings have yielded more than 1 oz. per ton, and he adds:—"If we go on at this rate we shall pay all our expenses this month." Now, unless Mr. Skertchley is guilty of absolute falsehood (and no one who knows that gentleman will for a moment breathe a word against his reputation), his report proves that the company is in possession of a splendid property, and whatever mismanagement there may have been in the past will not alter the fact that the shareholders have a good paying concern within their reach. Would it not be better, therefore, for those interested to endeavour by united effort to place the company in a sound financial position. Airing one's grievances in public can do no good, and if "Pangloss" is a shareholder, let him take the proper steps to concert with his brother shareholders to dismiss the secretary, and sweep away the old board of directors, if any specific charge can be brought against them. This is a matter which is entirely in the hands of the shareholders, and it only wants resolute action on their part to rectify the errors that have been made. If "Pangloss" is really desirous of promoting the interests of the company, I, for one, shall be happy to co-operate with him in any action he may deem it expedient to take; and if the directors can be proved to have wilfully mismanaged, or fraudulently misappropriated the money subscribed, our course is clear. Abuse can do no good, whereas united action will speedily remove the evil, if it exists. A SHAREHOLDER.

Grange Canal, Geneva, November 17.

THE GOLD AND DIAMOND FIELDS OF SOUTH AFRICA.

Sir,—I have read with much pleasure the very interesting articles which have appeared in the *Mining Journal* during the last six months from the pen of Mr. T. C. Kitto. These articles bear the impress of training and experience, and carry conviction on the face of them. Mr. Kitto evidently possesses in a large degree the power of making a dry subject interesting as well as instructive, as a vein of quiet humour runs through the whole of the articles. He can, however, deliver some very biting sarcasms if he chooses to do so. Mr. Kitto's articles are implicitly believed in here, and I have heard two or three large capitalists remark they would like to be introduced to the mining man who can so fearlessly make an attack on promoters' mines on behalf of investors. Seeing there is an attempt being made by interested parties to discredit Mr. Kitto, I think it is the duty of every person who has the welfare of mining at heart to support such men; and I should like, through your valuable paper, to thank him for myself and on behalf of a large number of friends for the manner in which he is exposing "paper mines" and safeguarding the pockets of investors. I hope that no supplementary correspondence will distract attention from the articles which, I again repeat, are admirable. Mining Investor.

Glasgow, November 17.

CHILE GOLD MINES.

Sir,—The Chile Gold Mines yield of gold is scarcely sufficiently satisfactory. The amalgamating department really, actually, knows little of the practical method of treating Chile's particular kind of stone or ore, which actually contains a much larger quantity of gold on an average than is yielded by the amalgamation. A really larger quantity of gold positively and certainly could be obtained by concentrating it on casting the smallest yielding and useless ore out, without mistaking invisible or rich gold stone, in which the gold is invisible to the eyesight, for worthless yielding stone; without doing this a larger amount of toil (or concentrating machinery) and amalgamating quicksilver are indispensably required. Other properties decreased their returns through these blunders, to an immense extent, in other places or countries. Every portion of invisible gold ore could be detected chiefly by assays, numerously made; concentrating the average and richer ore is chiefly what is required for the amalgamator to yield better results. The ore stone requires careful treatment to produce more, or above the average yield. Sufficiently excellent results in Chile's case should be ¾ lb. or upwards of the assay value per ton. A ton of Chile's species of goldstone requires 13 ozs. of quicksilver to amalgamate it when properly concentrated. Other mines require 16 ozs. per ton usually, or upwards, generally not below 13 ozs., to make sufficiently satisfactory yields.

Yielding less than 97 per cent. of gold by assay value proves there absolutely is ignorant or conceit working of gold stone, and improvement is much needed. Experimental trials or workings ought to be made by concentrating the average yielding stone (also the tailings) so as to discover how much quicksilver really has been wastefully used in erroneous working, and to much increase the returns. Chile's rightly using the needful amount of quicksilver and careful management ought to result in not the loss but gain in many thousand ounces beyond the present yield annually. The loss diminishes the amount that would be available for future dividends. Chile mines ore really yields twice the average yield of gold, so it is said, and the real yield is 3 ozs. per ton of the richer ore. Alfred.

DON PEDRO COMPANY.

Sir,—In the face of the extraordinary rise in Indian Gold and other mines, I cannot understand why so little attention is given to the Don Pedro shares. The work of reopening a mine by sinking a shaft in unproductive ground must at all times be of a tedious character, and uninteresting to the general public; but when it is borne in mind what splendid returns were obtained before difficulties were met with in sinking, and also the fact that a very large lode is known to exist at the deepest point reached—50 fm. level—it does appear strange that so genuine a concern as the Don Pedro should be, as it were, neglected, and attention given to properties without a history, and over which the public has already been so severely bitten. Don Pedro shares, 17s. 6d. paid, are now quoted in the Official List, and I see in the *Mining Journal* that the fully-paid shares are marked 2s. to 3s.—33, *Cornhill, E.C., November* 19. A. J. Atkey.

HOW TO IMPROVE THE COAL TRADE.

Sir,—The depression in the coal trade has now continued, with very slight and temporary intervals, for more than seven years. The loss and depreciation in value of coal properties during that time are estimated at more than 50,000,000*l.* sterling. Wages are reduced to a minimum rate, and yet an increasing quantity of coal is worked year by year, with no real profit to anyone but the owners of royalties. The working colliers in several districts have recently asked for an advance of wages in consequence of a small advance in the price of coal, and in one case it is reported that the masters, in refusing the application on the ground that the advance was only local, and perhaps temporary, informed Mr. Pickard "that they were quite willing to consider the question of the regulation of wages by means of a sliding-scale." I very urgently recommend that this suggestion should be accepted and carried into practical effect without delay. It is the only equitable mode of adjusting the rate of wages and securing for labour its fair proportion of the profits without strikes or lock-outs. If the colliery-owners and lessees had a Masters' Union as strong and united as some of the workmen's Unions, the present deplorable conditions would not have existed. Three things are now required:—

1. The wages of the workmen should be based on the present minimum rates as a standard, and be advanced by a sliding-scale adjustment, *pro rata*, with the increase on the present selling prices.
2. The masters should agree to limit the output generally, so as not to overstock the market.
3. The royalties should be modified, so that "dead-rents" should be non-accumulative when a minimum fixed price is attained which leaves no profit on working.

A sliding-scale of wages in the Cleveland and other iron districts has for some years been generally carried out with mutual advantage under trying circumstances; and a sliding-scale arrangement of wages for the workmen connected with many collieries in Durham was established last year, and is likely also to prove successful. It is admitted that the present depression will continue until either the demand increases or some united action is adopted to reduce the output. There appears to be at present no reasonable probability of the demand generally increasing, but immediate action might be taken to reduce the output. I have discussed the question with many owners and lessees of coal, and none of them can see when and how the long-expected improvement is to come; but some, in a spirit approaching to despair, appear to expect that the present prices must eventually close many more collieries, and thus lessen the competition. This view has proved generally fallacious. A colliery is in many respects unlike other trades. When the proprietors of a colliery company fail or go into liquidation, the plant is usually sold at a great sacrifice, but the pit's machinery and coal remain, and a new purchaser having less capital chargeable with interest is in a better position than the old proprietors to compete with his rivals. There is really no present practicable remedy but to reduce the output, and this can only be done by the united action of masters and men. There are now no secrets as to the large capital required in the coal trade, or as to the cost and profits of coal-getting. If Mr. Pickard and Mr. Burt, M.P., and a representative from South Wales would consider the subject on behalf of the workmen, an equitable scale might be adopted and the output reduced 5 per cent., and the price of coal advanced 1s. to 1s. 6d. per ton in a month from this date. The price of coal in 1872-3 advanced nearly 100 per cent. when the actual continuous demand exceeded the supply by only about 5 per cent. The reverse operation of lessening the present production to the extent of 5 per cent. would at once produce the desired increase in price of at least 1s. to 1s. 6d. per ton. Is it unreasonable to ask each colliery lessee or owner to reduce his output 50 tons for every 1000 tons he now produces? This course, I venture to hold, is the only natural and practicable adjustment, and is not less in the interests of colliery lessees than of the workmen. Why should the market be continuously overstocked? It sometimes appears to be forgotten that our "harvest of coal" for a thousand years is now and always will be wholly at our disposal and ready to be worked, and that some coal must be left unworked for hundreds of years. Only the best and the cheapest in each district, all things considered, should now be worked. The present selling price of coals at the pit mouth of the principal collieries could be ascertained exactly. These prices are now reported officially, and appear in the *Mining Journal* and other papers weekly. The cost of "getting" and "hauling" at the various pits could in each case be accurately ascertained by an independent and experienced accountant, and a sliding-scale of wages could now be constructed on the basis of the present wages and prices. This wages scale should be adjustable to any rise or fall in prices, and so simple and plain that the workmen could understand it. For instance:—If the present selling price at the pit mouth is 6s. per ton, and the total underground wages 3s. per ton, the workmen shall receive on every advance of 6d. per ton, 3d. or one-half. If the price advanced to 7s. 6d., the workmen's share would be 3s. 9d. This scale should not be complicated by any calculations as to what the masters' half of the price composed, such as royalty, interest on capital, wear and tear, management, and sale expenses. In same cases the proportion of expenses in wages will vary 10 or even 20 per cent. on coal which sells at the same price, and the masters' payments and expenses may in other cases vary in like manner. But these varying proportions need not effect the simple proposition now made that the present *status quo* be accepted and that one-half any future increase in price to the extent of 6d. per ton shall be proportionately applied to increase the wages of all classes of workmen, and that the average price of the total sales, every three or six months, shall settle the rate of wages for the next three or six months.

Since 1872 the royalties and dead rents have in many cases been unduly increased; they should now be proportionately reduced to correspond with the last seven years' average prices. This could be accomplished by a general masters' Union. The exaction of heavy "dead rents" has in many cases during the last few years forced lessees to continue to work their collieries up to the maximum output at an actual loss rather than accumulate "shorts" with no probability of being able to work them off; the stoppage of the pits, with the inevitable payment of the present dead rents, would generally entail a still greater loss, and possibly immediate ruin. During the last 25 years I have been personally concerned in the sale and purchase of many coal and iron properties, and have had special opportunities as auditor and director of knowing the exact facts, and I have long been convinced that an equitable adjustment of wages to prices on the basis I have indicated is quite practicable, and might be immediately adopted with mutual advantage to masters and workmen, and without objection by the large coal consumers and the general public. David Chadwick.

36, *Coleman-street, E.C., November* 19.

Tramways.—The closing prices of this evening, as quoted by Mr. Wm. Abbott, of Tokenhouse-yard, are given in tabular form in the stock and Share List page of the Journal.

SIR F. A. ABEL ON MINE EXPLOSIONS.

On Wednesday evening the 132nd session of the Society of Arts was opened by an address by Sir F. A. Abel, Chairman of the Council. The address was mainly devoted to the subject of accidents in coal mines, and, as will be seen from the report, it indicated the progress made in the prevention of, and protection against, explosions in mines. It further gave an outline of the extent and utility of the work done by the Royal Commission on Mine Accidents, whose final report is expected to be issued about the end of this year or early in 1886. Among those present were:—Lord A. Churchill, Sir F. Bramwell, Sir P. Cunliffe-Owen, Sir H. Bessemer, Sir V. Lister, Sir R. Rawlinson, Captain D. Galton, Mr. Vicat Cole, R.A., Mr. W. H. Preece, Professor Odling, Dr. Brudenell Carter, Professor Dewar, Mr. T. R. Crampton, Mr. Warington Smyth, and Mr. A. J. Ellis.

The address to which the members of the Society of Arts were so good as to afford a favourable reception at the opening meeting of last session, was in great measure devoted to topics suggested by the International Health Exhibition of that year. Wide as was the scope of that Exhibition, which dealt not only with the necessaries and comforts of life, and the promotion of bodily health in the feeding, clothing, and housing of all classes, but also with the all-important subjects of physical and mental training, the Exhibition of Inventions—which has just terminated a prosperous and, I believe, a very useful career—was certainly not less comprehensive, in regard to the number of subjects which it embraced. The 31 groups, comprising no less than 165 more or less extensive classes of subjects in connection with which were exhibited inventions or improvements originated or practically applied since 1862, constituted a wealth of material for study which could bear comparison, as regards extent and interest, with that presented by any one of the great International Exhibitions of former years, the initiation of which we owe to that illustrious prince whose memory the Society of Arts delights to honour. I have resisted the temptation, which was strong upon me, to devote this evening to a brief review of some of the chief matters of interest presented by the most prominent sections of the Exhibition, because I entertain a lively hope that a thorough examination of at any rate many of these will afford topics for important communications to this society, and I consequently feel that it might be detrimental to the interest presented by such papers, and scarcely just to those who may consent to devote themselves to their preparation, were I to cull specially attractive matter from the mass of information opened up to the student by the achievements demonstrated at the Exhibition. I have, therefore, coerced myself into modest action on the present occasion, and I propose to initiate a mode of treatment of the topics presented for study by the late Exhibition, which I hope may be of benefit to our members, and perhaps to the public at large, by dealing in this address only with some matters relating to one branch of a division of the Exhibition—namely, the class which deals with machinery and appliances used in mines. I venture to think that this class of subjects has claims to special interest, because the mining industry ranks among the most important sources of the wealth and cosmopolitan influence of the empire; because its development and successful pursuit have involved the utilisation of the resources of many branches of applied science, and have taxed the talents and ingenuity of some of our greatest mechanics, and most accomplished physicists and chemists; and, though last not least, because the pursuit entails the encountering of dangers and vicissitudes which will aptly bear comparison with those involved in the career of a soldier and a sailor. Thrilling and harrowing accounts of great disasters in coal mines direct public attention from time to time to certain special dangers which the miner has to encounter; but the annual reports of her Majesty's Inspectors of Mines show that there are yet other dangers to which miners in general are daily exposed, which, although they do not attract public attention, partly because of the very circumstance of their constant occurrence, and partly because the sufferers by them meet their deaths in most cases singly, are, nevertheless, very decidedly more formidable in regard to the gross extent of the fatalities attending them, than are coal mine explosions. When the late Mr. MacDonald, M.P. for Stafford, made his remarkable speech in the House of Commons, in 1878, advocating the necessity for the more rigorous inspection of coal mines, and supported his arguments with the enumeration of an appalling list of colliery explosions, attended in most cases by the loss of many lives, it was pointed out by Mr. Thomas Burt, and some other members who took part in the subsequent interesting debates, that explosions did not constitute the chief element of danger which the miner had to encounter, and that, while out of 25,000 lives which had been lost in mines since 1851, over 6000 deaths had been caused by explosions, there were more than 10,000 due to falls of stone and coal in the mine workings, which attracted little or no attention. Mr. Cowen also called attention to the fact that there was a still larger number of injuries, due to such causes as these, which were never heard of beyond the locality of the disasters, because they were not attended with fatal results, although in the larger proportion of such cases the sufferers were either maimed for life, or died after more or less brief intervals. The following table which has been compiled from the annual reports of the Mine Inspectors for the past 10 years shows the total number of deaths annually due to accidents in mines, and the deaths due respectively to explosions, to the falls of roof or sides in mine workings, and to other miscellaneous causes; and it will be seen that even in those years when especially disastrous explosions had occurred, causing the deaths of scores or hundreds of men, the fatalities due to them were, with the exception of two years, considerably in the minority compared with deaths from falls of roof and sides, while, comparing them with the deaths due to all other causes, the latter were invariably much in excess, being from about 1·5 to 13 times greater in number than the deaths from explosions.*

Statement of Proportion of Deaths from Explosions in Coal Mines from Falls of Roof and Sides, and from other miscellaneous causes to Total Deaths in Mines from all causes during the years 1875-1884.

Year.	Total Number of Deaths from Accidents of all kinds.	No. of Deaths from: Explosions of Fire-damp.	Roof and Sides falling.	Other causes.	Results of some of the more disastrous Explosions in each year.	Lives lost.
1875	1244	288	459	497	Explosion at Swaithe Main Col., near Barnsley	143
					,, Bunker's Hill Colliery, Stoke-on-Trent	41
					,, New Tredegar Colliery, Monmouthshire	23
					,, Llan Colliery, near Cardiff	18
1876	933	95	449	389	,, South Wales Colliery, Abertillery	23
1877	1203	345	443	415	,, Blantyre Colliery	207
					,, Pemberton Colliery, near Wigan	36
1878	1413	586	469	358	,, Abercarn Colliery, Monmouthshire	68
					,, Wood Pit, Haydock	189
					,, Apedale Colliery	23
1879	973	184	426	363	,, Barwood Colliery, Kilsyth, near Glasgow	17
					,, Dinas Colliery, Pontypridd	63
					,, Blantyre Colliery	24
					,, Stanley Colliery, near Wakefield	51
1880	1318	493	462	357	,, Seaham Colliery	164
					,, Risca Colliery	120
					,, Penygraig Colliery	101
					,, Leycett Colliery	62
1881	954	116	450	388	,, Abram Colliery, Wigan	48
					,, Whitfield Colliery, Tunstall	25
1882	1126	250	468	408	,, Trimdon Grange Colliery, Durham	74
					,, Tudhoe Colliery, Durham	37
					,, Clay Cross Colliery, Derbyshire	45
					,, Baddesley Colliery, Warwickshire	23
1883	1054	134	469	451	,, West Stanley Colliery, Chester-le-Street	13
					,, Altham Colliery, Lancashire	68
					,, Wharncliffe Carlton Colliery, near Barnsley	39
1884	942	65	432	395	,, Pochin Colliery, near Tredegar, Monmouth	14
					,, Naval Steam Coal Colliery, Penygraig	14

It is not surprising, however, that the paralysing moral effect exercised upon small mining communities, and the heartrending local misery and suffering which suddenly and simultaneously fall upon many families, should cause coal mine explosions to command special sympathy, and to call forth public expressions of regret and surprise that the resources of science and of legislative power should have failed utterly to prevent, or even very greatly diminish, such sad disasters, while, on the other hand, the daily occurrence of fatal accidents in the ordinary pursuit of the miners' vocation attracts little public attention, although it receives at the hands of those who study the official reports of mining casualties the serious consideration which it equally merits. It has been contended that the classes of minor and constantly recurring accidents, which combine to cause a far more formidable total of deaths that even an unusual succession of serious explosions, are to a great extent made up of unavoidable sources of danger to which the miner must be exposed; and that, on the other hand, the causes which lead to explosions have been long known, and can be readily grappled with and removed by the colliery-owner or manager. That the former is the case, as regards at any rate the greater proportion of the smaller accidents, can, however, be as little admitted as that it would have been possible in the past to attain to security against explosions by perfection of ventilation, by the prohibition of the use of explosives in so-called fiery mines, and by the exclusion of naked lights from localities where fire-damp is known to exist or to be liable to make its appearance. The nature of some of the chief and most prevalent conditions favourable to mine explosions is, in fact, only now being thoroughly established and made clear, and the same may be said of the nature of measures and appliances by which explosions may be avoided or diminished in magnitude, and comparative safety in working made compatible with a reasonably profitable encounter of the difficulties attendant on the getting of coal, which are continually increasing as the exhaustion of our supplies is approached. From the foregoing considerations, it is evident that very great interest and importance must attach to any decided improvement in systems of working, or in appliances connected with mining, and bearing directly upon the safety, facility, and degree of comfort from a sanitary point of view, with which subterranean operations can be carried on, and upon the general welfare of that considerable proportion of the country's population composed of the toilers underground. The members of the Society of Arts will, therefore, I feel sure, take a lively and sympathetic interest in the statements and observations which I have to offer in connection with the mining section of the late Exhibition, and, in reference to the labours, now fast drawing to a close, of a Commission, appointed by Her Majesty about six and a half years ago, to enquire and report whether the resources of science could furnish any practical expedients, not then in use, which might be calculated to prevent the occurrence of accidents in mines, or to limit their disastrous consequences; a Royal Commission whose earnest and disinterested labours have been patiently, steadily, and faithfully pursued to successful issues, in spite of engrossing official public and professional duties, and undeterred by the public censure and abuse with which the persevering efforts of its members to complete, as far as practicable, the heavy task allotted to them, have as yet been alone encouraged. The display at the recent Exhibition of implements and appliances connected with mining, though not extensive, was yet sufficiently comprehensive to be fairly representative of the nature of improvements which have of late been accomplished in boring and drilling machines, in miners' tools, in haulage and hoisting machinery, and the provision of power underground, in appliances for preventing accidents in connection with the lowering and raising the cages, in the mechanical appliances for coal-getting, and proposed substitute for explosives, and in means for safe underground illumination. Some of the exhibits included under these heads demonstrate very important progress made since the Accidents in Mines Commission commenced their labours, and are traceable in several directions to certain results of those labours, which, though not formally communicated

* The facts embodied in the above table have been long accessible to all who care to inform themselves correctly by reference to the published annual reports of H.M. Mine Inspectors; it is, therefore, somewhat surprising to find the Manchester correspondent of the *Times* to whose views that journal appears to attach much weight, and whose evident acquaintance with high authorities in matters relating to coal mines, such as Mr. Ellis Lever should have, at any rate, assisted him to a knowledge of the existence of these reports, is ignorant of the truth relating to a subject with which he deals in a fashion somewhat over authoratative for the representative of unenlightened earnestness, which is impatient to learn the reason for hesitation on the part of a Royal Commission on mine accidents in promulgating its conclusions, is incredulous of the difficulty of speaking out, and indignantly regards the delay as a national scandal. In support of this somewhat strong expression of sentiment, unenlightened earnestness enquires whether it has really needed so long to dispel any doubt that shot-firing, for instance, is the commonest cause of the loss of life in coal mines.

to the public in the shape of reports, have become known to many who are actively engaged in the management and supervision of mines. In the preliminary report of the Accidents in Mines Commission, published in 1881, it was pointed out that the great advance which had been made in the previous 30 years in the reduction of the death-rate in mines, the number of persons employed having been nearly doubled, while the total number of deaths remained about the same, was due not merely to improved legislation connected with mines, but also to the spirit of enquiry and emulation fostered by local scientific institutes of mine managers and mining engineers. These institutes, among which the North of England and the Midland Institutes of Mining and Mechanical Engineers may be specially mentioned, have continued to labour actively for the advancement of knowledge bearing upon the reduction of danger in mines, not only by the reading and discussion of papers but also by the prosecution of systematic experiments on the relative merits of safety-lamps and other matters intimately connected with the experimental work which the Commission has been at the same time pursuing, and the results arrived at have been most valuable as contributing to and confirming important conclusions which have been arrived at. The preliminary report of the Commission consisted to a great extent of a summary of a large mass of evidence taken by them from the Inspectors of Mines, from experienced colliery-owners and mining engineers, and from a number of workmen selected for the purpose by the Miners' Associations. An examination of that evidence showed that there were several important subjects connected with the safe and efficient working of mines upon which large differences of opinion prevailed, even among those who combined great practical experience with scientific knowledge of no mean order. This was especially the case with reference to the employment of naked or open lights in mines, the relative merits of well-known safety-lamps, the uses of gunpowder or other explosives underground, and the possible influence of coal dust in the development or extension of explosions. It was, therefore, especially in these directions, that the Commissioners considered it their paramount duty to pursue experimental enquiries, and, as those investigations proceeded, their importance and the useful results likely to emanate from them became the more apparent, while each succeeding step demonstrated the necessity for proceeding further in the enquiries, so that, even up to this the period fixed by them for the completion of their final report, the Commissioners have found themselves still engrossed in experiment. Without presuming to deal in anticipation with the conclusions arrived at by my colleagues and myself as the results of our protracted investigations, I may venture, in touching upon the chief points of interest suggested by the Mining Section of the Inventions Exhibition to indicate the nature of some of those results sufficiently to illustrate the progress which has been made in certain matters most vitally affecting the safety of the miner. The important advances which have of late been made in the methods of operation and mechanical appliances provided for exploring and for breaking ground, were illustrated in the Exhibition by some of the most recent improvements in boring and drilling machines, and in the construction of the more ordinary hand tools. Without dwelling upon the marked advance which has been made in the operations of deep boring and of tunnel driving, by combining the utilisation of steam or compressed air with the method of continuous flushing, by replacing the solid rods and sludge pumps by hollow rods and continuous water circulation for the removal of detritus, special reference must be made to the great improvement effected in mining operations by the use of drills or perforators driven by compressed air, of which six varieties were shown, representing only a small proportion of the various forms of mechanical drills introduced into practice during the last 20 years. Considerable improvements have also been made in hand-drilling machines, which, supplemented by the employment of wedges, have been used successfully for bringing down coal or rook in some localities where fire-damp is prevalent. These drills, of which that exhibited by Messrs. Asquith and Ormsby appears to be a very efficient form, are mounted upon wrought-iron standards which are firmly wedged between floor and roof, and are worked by a ratchet-bar or a winch-handle (the Asquith drill being worked by an endless chain, which enables a hole to be bored close to the roof); a long taper steel wedge is then introduced between two side clips or "feathers," and is driven home by blows from a sledge hammer; or the wedge is forced in between the feathers by the operation of a screw-bar. Here, again, Messrs. Asquith and Ormsby have achieved comparatively considerable success, by application of an efficient modification of the plug and feathers system of wedging. So-called coal-cutting machines, for holing or undercutting coal, of which many forms have constituted prominent features in the mining sections of former exhibitions, were only represented by one variety on the present occasion, and appear to have hitherto made little way, although their use would seem to be attended with some decided advantages. Hydraulic pressure has been applied with some degree of success in connection with drilling machines and with the forcing down of coal; thus Mr. Chubb has applied the hydraulic press to the working of a range of pistons placed inside the holes; Messrs. Bidder and Jones used a long wedge in a similar manner in some apparently successful work in South Wales and the Potteries; and more recently, Messrs Dubois and Francois, who exhibited the apparatus at last year's Health Exhibition, have applied a very efficient hydraulic arrangement, called the Bossoyeuse, with considerable practical success at Blanzy, near Liége, for the last three years to the removal of rock or stone in mines where fire-damp exists. The method of operation is very simple. A number of holes grouped together in a particular manner are bored by means of drills actuated by compressed air, and plug and feather wedges are then driven into the holes by means of an hydraulic ram. The rapidity with which rock is thus removed is stated to compare even favourably with gunpowder. I should fear to be led too much into detail were I to refer to the different methods of working seams of coal, which have been subject to but few modifications of late, and to the variety of circumstances which determine their expediency or relative merits in different cases, or of opinions entertained by advocates of each particular system. I will limit myself, therefore, to the statement that the so-called longwall system, which consists in the continuous excavation of the coal throughout or along a considerable distance of the breadth of the seam, the excavated part being filled up as the work advances with stone and slack, or with material brought from the surface, presents facilities for securing efficient ventilation, and other advantages, in regard especially to the safety of the workmen, by which it recommends itself for choice wherever it is applicable, and more especially in districts where fire-damp prevails, it being decidedly the safest method of working, both because of the facilities it affords for effective ventilation, and because it entails less liability to accidents from falls of coal, &c., than other systems of working. The large proportion which, with rare exceptions, accidents arising from falls of roof and sides in mine workings bear to casualties of all other descriptions, should render the subject of their possible diminution a matter for anxious and constant consideration and study at the hands of those connected with the management of coal and mineral mines. The tendency to a sudden dislodgment or giving way of the roof or sides of a working depends upon a considerable variety of causes, such as the conditions under which different seams, beds, or veins, over or underlying each other, are worked, the inclination at which they are found, the character of stone or mineral composing the floor and roof of the mine. Sometimes there are slips or cleavages intersecting the seam, and running up into the roof; in other cases comparatively loose masses, or "balls" of ironstone are irregularly interspersed in a bed or seam, and may become suddenly detached from the roof, their presence having been unsuspected; or sometimes, when seams are worked close together, great pressure may be brought to bear upon the floor or sides, and the roof may suddenly yield in consequence. An examination of the Mines Inspectors' Casualty Returns, and of evidence given before the Royal Commission by Mr. Dickinson, Chief Inspector of Mines, happily shows that although, at first sight, the deaths from the falls of roofs and sides appear to form a larger proportion of the total deaths in mines than they did 30 years ago, a considerable improvement has actually taken place in the death rate from falls during the last 20 years. This is unquestionably owing to bestowal of increased care upon the proper support, by timbering or arching, of the roof and sides of many workings, or upon improvements in the system upon which this most important work is carried out. Cheering as these results are, it cannot be doubted that much remains to be accomplished in order to reduce the proportion of casualties from these causes to some approach towards what might be reasonably accepted as unavoidable at the present day. Attempts have, from time to time, been made to apply iron, in one form or another, as a means of giving increased security or stability to the support applied to roof and sides in mines, and some of the more recent of such applications are said to have presented decided advantages, though, as yet, no really extensive use appears to have been made of iron supports or frames, at any rate in this country. There is no doubt that unremitting, careful inspection, and the continual devotion of skilled labour judiciously applied, the provision and maintenance of thoroughly reliable supports, even where their necessity may be somewhat open to question, are the best safe-guards against accidents due to falls. While it may be very desirable for mineowners to make special provision for the maintenance of the timbering and arching of the ways of a mine in a thoroughly efficient condition, by skilled labour specially provided for the purpose, the proper timbering of the working places will generally be in the hands of the miner himself; it is, therefore, of the highest importance that ample means should be provided, in convenient positions underground, to enable him to do this readily and thoroughly, and that every encouragement and facility should be afforded to enable him to obtain training in the operation of timbering, and to prevent him from grudging the extra time and labour necessary for carrying out the work thoroughly. One great safeguard to the miner against accidents from falls of stone and coal would obviously be the provision of efficient illumination of the ways and working placings. It is of small avail to impress upon him the necessity for constant viligance, so that he may escape as soon as he perceives the first signs of an impending fall, unless he has sufficient light to enable him to see distinctly, if only in his immediate vicinity. One powerful excuse for the use of naked lights, even where the risks of producing explosions was known to be incurred thereby, has been sought, and even sometimes admitted, in the necessity for more light in insecure places than that furnished by the Davy, the Geordie, or the Clanny lamp; and the argument against enforcing the general adoption of safety-lamps, strongly urged by Mr. Burt and other authorities on the occasion of the debate in the House of Commons, to which I have already referred, was the miserable insufficiency of the light afforded by them, and the consequent necessary increase in the number of accidents due to causes other than explosions, and which could often be avoided if sufficient light were at hand. Among improvements of late effected by many in connection with the construction of safety-lamps, has been the increase of their illuminating power; and this subject of underground illumination, which has received the special attention of the Commission, as I shall presently have occasion to point out, is, I may confidently say, ripe for very great amelioration. Such improvement cannot fail to operate beneficially in reducing the number of particular kinds of accidents grouped together as miscellaneous, which occur but too frequently during the daily routine work of a mine, especially those connected with the output of the coal, *i.e.*, its removal from the working places to the bottom of the shaft or pit. The simple modes of underground transport of coal by manual or horse labour have now, to a very considerable extent, given place to its haulage, in large quantities at a time, along tramways, by means of wire ropes or chains actuated either by steam hauling engines placed near the pit bottom, or by compressed air engines stationed in different parts of the main roads Some good illustrations of hauling machinery of these kinds were included in the Exhibition, and members of the Society of Arts cannot fail to remember with interest that our late lamented Chairman, Sir William Siemens, was the pioneer in the introduction of electric hauling arrangements for mining work. A fruitful source of disaster connected with mines has been the descent or ascent of the men by the shafts, and many contrivances have been devised, some of which have been more or less extensively applied, for preventing accidents resulting from the overwinding of the cages in which the men and the coal are brought to the surface, or from the fracture of the rope with which these cages are worked; so-called safety hooks, or detaching hooks, being used for disconnecting the cage from the rope in the event of overwinding, while safety-catches are applied to a free-falling cage in its descent down the shaft, by gripping the pit guides or cutting into them. Although the utility and real efficiency of not a few of these devices have been demonstrated by actual experience, their possible fallibility and occasional failure have engendered hesitation in their general adoption; but they cannot fail to be important safeguards, equally perhaps with those afforded by great improvements which have been, and are, continually effected in the construction and quality of the hauling or pit ropes, of which a new form of wire rope, recently exhibited by Mr. Latch, afforded an interesting illustration. It need scarcely be pointed out that it is impossible to overrate the necessity for the bestowal of the highest skill and care upon the manufacture, testing, and periodical inspection of these all-important adjuncts to mining work, to which many thousands have daily, in blind confidence, to trust their lives. The great improvements which have been effected in the steam brakes and reversing gear applied to the powerful winding-engines, which, as monuments of mechanical skill, merit the careful inspection of all interested in mining industry, are most important additions to the safety appliances provided in the present day in connection with the pitwork of our mines. To these must be added the improvements made in signalling arrangements from the surface and underground, in connection with which electricity has of late commenced to play an important part. The great advance which has been made in the ventilation of mines during the past half century is well known to all who have paid the least attention to these matters. Not only has the ventilating furnace been greatly improved in efficiency and power; the steam jet and compressed air have received important application within the last 36 years, and mechanical ventilating agents of great power have come into extensive use during the past 23 years. In 1850, Mr. Kenyon Blackwell, the well-known authority on mining, reported, as Commissioner to the Home Secretary, that "the liability to derangement in all machines appears to preclude their use in ventilation, in other than exceptional cases. In mines of large extent it would be difficult, perhaps impossible, to withdraw the workmen, in case of breakage, before danger ensued." But at the present time many hundreds of fan and other mechanical ventilators are in operation in connection with mines in this country, such as the Guibal, Waddle, Schiel, and Rammel fans—some of which are of stupendous dimensions—and the Nixon, Cooke, Roots, and other mechanical ventilators. The volumes of air which are passed through mines in the present day would not have been dreamt of a few years ago. Thus, a current of air travelling at the rate of more than 400,000 cubic feet per minute is maintained at the South Hetton and Merton Collieries by means of three furnaces. By some it is even contended that ventilation in now carried in certain mines to an extreme which may not be unattended with danger, as the tendency of powerful currents in rushing to the point of egress is to favour the emission of fire-damp from the surface of the coal; there are some who maintain that the forcing of air down the pit-shaft, a practice which has received some limited application, is much safer than drawing rapid air currents through the mine and up the shaft, because the pressure of air forced in would tend to check the escape of gas from the coal, and from receptacles where it may be lodging. It scarcely can admit of doubt, however, that the release and rapid removal of gas by air current sweeping rapidly towards the upcast shafts of the pit must be comparatively more conducive to safety. The proper distribution of the air which is drawn down into the pit, and the arrangements necessary for ensuring the distribution of fresh air throughout the different roadways and workings in a mine, and its isolation from return—or foul air—currents which are passing to the upcast or exit shaft, are now carried out effectually in a large proportion of our coal mines; though here and there much still remains to be accomplished in this direction. Although we have long been familiar with the nature of fire-damp, and with the generally accepted explanations of its origin in coal, considerable uncertainty and consequent diversity of opinion still prevail as to the condition in which the gas is pent up in coal, and in the strata immediately associated with it. That the light carburetted hydrogen, which chiefly composes fire-damp, exists, with its associated gases, in a more or less condensed condition, in coal, even some time after removal from the pit, and that the gradual escape of the condensed inflammable gas from coal has constituted a fruitful source of disaster to coal-laden ships, and to steam-vessels carrying a large provision of coals—such as our ships of war—are very well-known facts; but there are constantly recurring phenomena connected with the escape of gas from coal, a really satisfactory explanation of which is still wanting, although patient enquiry has long been devoted to its discovery. The distribution of gas through certain seams of coal under very considerable pressure is rendered manifest to those visiting a new drift in such a seam, by the escape of gas more or less over the entire face of the coal with a singing or hissing noise, sometimes almost deafening, as it forces its way through films of water which frequently cover the coal, or as it bubbles up through puddles on the floor. If cavities exist in the coal, or are bored into it and plugged, the gas will accumulate there so as to exercise considerable pressure, as demonstrated by some recently published experiments, instituted by one of the Royal Commissioners at the suggestion of his colleagues, in several collieries. Borings of different depths were made into the coal, and the pressure of gas which accumulated at the far end of these borings was measured by pressure gauges fixed into their openings, and found to range up to over 200 lbs. upon the square inch, and in one case even up to 460 lbs.; the pressure attained varied very considerably even in one and the same seam, and in borings in close proximity to each other. In some localities, the gas issues as a jet, or so-called blower, with very considerable force, and many of these blowers furnish a continuous supply of gas under fairly uniform pressure, so that, by closing in the face of the coal with brick and cement work, into which an exit pipe is fixed, the gas may be conducted in a steady stream to the surface, where it is utilised for heating and even for illuminating purposes. It often happens that these natural gas supplies, which continue for very long periods to be evolved in undiminished quantity, suddenly fall off considerably, or cease altogether. Many explanations have been offered of the existence of these blowers, and of the maintenance of the gas supply, but they have remained a mystery. Their occurrence has been an interesting feature connected with coal mines, from a comparatively early period. Thus, in 1765, such considerable quantities of gas were evolved from the seams of Whitehaven and of Workington, that a copious supply was brought to the surface by pipes, and a proposal was made to light up the streets of Whitehaven by means of this gas. For many years the Wallsend Colliery was noted for a copious blower, which was brought to the surface, and continued for a long period to furnish a constant supply at the rate of about 120 cubic feet per minute, and many similar examples might be quoted. Remarkable as these supplies of natural gas are, they do not bear comparison, however, with the stupendous supplies which are yielded by the petroleum districts of the Caucasus and of the United States; an interesting account given of the latter to the society by Professor Dewar, last May, will be fresh in the memory of the members. It may be mentioned that Mr. Andrew Carnegie, in his description of the Pittsburg oil and gas fields, mentions one well in the Murraysville district which yields 30,000,000 cubic feet of gas in 24 hours. In comparison with this, the most copious gas supplies which have been furnished by blowers from coal are quite insignificant. The systems of ventilation now in use in coal mines, and the powerful circulation of air maintained thereby, deal effectually with the removal of gas, as it exudes from freshly-worked coal even in very fiery mines, when it passes into the main ways and the workings which are actually in use; but in old workings, recesses, or cavities, and in the so-called goaves, where the worked out space has been filled up with stone and debris of coal, such localities being more or less out of the reach of the regular ventilation of the colliery, the gas may lurk and lodge, and may at any time constitute a source of great danger if special means are not adopted to favour its removal; and under any circumstances, even with the most efficient and searching ventilating arrangements, the almost unavoidable existence of some accumulations here and there in mines where fire-damp is prevalent renders absolute freedom of the air in the mine from fire-damp practically unattainable in such cases, although the amount diffused through the air may seldom under ordinary conditions approach, even distantly, to the minimum proportion which, *per se*, might constitute a source of danger. It is now generally admitted that variations of atmospheric pressure influence the tendency of fire-damp to escape from goaves or old workings in a mine where accumulations are liable to exist, and that when a reduction of pressure suddenly sets in such an escape may take place even to some considerable extent before the barometer indicates the depression. Some even maintain that the emission of gas from the face of coal which is being worked is considerably promoted by such alterations of pressure. Some years ago Messrs. Galloway and R. H. Scott published a series of interesting observations which indicated a connection between the occurrence of meteorogical changes and of colliery explosions; but, although there are many undoubted instances of explosions having occurred during sudden and very considerable depressions of the barometer, different observers in this and other countries are by no means in accord as to the extent to which in a properly ventilated mine, the existence of fire-damp in the air is influenced by barometric changes. A fortnight ago, the *Times* correspondent in Vienna directed attention to experimental observations which are being carried on systematically at some collieries of the Arch-Duke Charles at Karwin, in Silesia, with a view to investigate this question. A report has been recently issued on the first series of these experiments, but while its authors consider themselves already justified in the conclusion that the proportion of fire-damp in the air of a mine generally increases with a diminution of atmospheric pressure, and *vice versa*, and that the increase or diminution in the emission of gas is rapid in proportion to the rapidity and extent of the atmospheric change, the actual observations given include many conflicting points. The report dwells on the fact, as a forcible illustration of the connection between explosions and barometric expressions, that in the case of four extensive explosions which occurred during the past year, including that at Clifton Hall Colliery in June last, the catastrophe took place during a rapid and considerable fall of the barometer. In the House of Commons debate of 1878, to which I have more than once referred, Mr. Cowen suggested that warnings of approaching depressions should be telegraphed to collieries from the Meteorological Office, and the same suggestion has been made in other quarters; but opinions differ greatly as to the wisdom of such a course. There can, however, be no doubt of the importance of local meteorological observations, systematically carried out, and of their receiving constant attention, in connection with the ventilation of the mines, and with regulations respecting the firing of shots. There are some mines so free from fire-damp that naked lights, in the form of candles or oil lamps, may be used therein with perfect safety as illuminating agents, and others where, the occurrence of fire-damp being confined to some few localities, the use of safety-lamps need apparently be only insisted upon in certain parts of the workings. There can be no doubt, on the other hand, that the adoption of even the most perfect ventilation cannot secure such absolute safety as to render the use of naked lights warrantable where seams are worked in which fire-damp exists in any abundance, because danger may there arise at any time, from some accidental stoppage or partial failure of the ventilating arrangements, from the effect of a reduction of atmospheric pressure in promoting the escape of gas from lurking places, or from a liability to the sudden emission of gas in considerable quantity from coal, to which reference will presently be made. The very poor light furnished by the forms of safety lamp still chiefly in use, and the consequent increase in the difficulties of working and in the risk to which the miner is exposed from sudden falls of coal or stone, have afforded very strong temptation to the men to have recourse to naked lights, and to the managers of mines to regard such proceeding with indulgence, even where its danger is well recognised. The strongest incentives have, therefore, existed to the application of inventive and constructive ability, either to the improvement of the light furnished by existing form of safety lamps, or to the produc-

tion of new forms of lamps presenting decided superiority over them in light-giving power. It is, however, not only in this direction that the miners' lamps have needed and received improvement; the poor light furnished by the older forms of lamps in a quiet atmosphere becomes even much worse when they are exposed to such currents as are now met with in properly ventilated mines; in order, therefore, to afford that advantage over naked lights from the simple point of view of efficiency for working purposes, which shall tend to secure its preference over these, the lamps should burn brightly and steadily even in strong currents of air. Lastly, though first in order of importance, the lamp should be unable, under any circumstances at all likely to arise in coal mines, to ignite an inflammable or explosive mixture of fire-damp and air, even when this is passing at the highest velocities which can occur in any part of the mine. The importance of determining how far modifications of existing lamps, or new kinds brought forward from time to time, fulfil the latter condition, has led individuals specially interested in the subject, and associations of mining engineers for many years past to submit lamps to comparative experimental tests, and the first branch of enquiry which was taken up by the Royal Commission, and which has been steadily pursued by the members up to a quite recent date was the systematic comparison of the behaviour of different lamps in currents of explosive mixtures of gas and air travelling at different and accurately determined velocities. More than 200 different lamps, partly received from various manufacturers and inventors in this country, and partly from France, Belgium, and Germany, have been submitted to tests in explosive atmospheres under variously modified conditions representing, as far as possible, every variety of circumstances under which the lamp might be employed in a mine. As the experiments proceeded, and the results of tests applied to particular lamps became known to the makers modifications in construction were introduced by them and by others, or new arrangements devised, and even up to the present day the Commission have continued to receive new lamps with urgent requests that they should be included in the trials, the difficulty of bringing the enquiry to a termination having thereby been much enhanced. The investigation has not only dealt with the question of the safety of the lamps, but has also included a careful determination of the amount of light furnished, and of the burning qualities of all the more promising lamps, as well as an examination into the practical merits of the lamps, in regard to construction, weight, and handiness, it being of high importance that a miner's lamp should be simple, handy, and easily taken to pieces and put together, with the certainty that all parts are properly fitted, so as to secure safety, and that the lamp, when once lighted, cannot be readily opened. Collateral experiments have been made upon the relative merits in point of safety and efficiency of different illuminating agents susceptible of employment in safety lamps. The experiments have been carried out by the Commission, partly at particular collieries in South Wales and Lancashire, where natural blowers of fire-damp, which are piped to the surface, furnished the supplies of gas with which the tests were made, and partly at Woolwich Arsenal where special facilities were furnished for accurate and extensive experiment. The results of these extensive investigations will now very shortly be in the hands of the public, and I must not presume to do more than indicate their general nature. Until within a comparatively recent period, only three types of lamps were in extensive use in this country—the original safety-lamps which the miners owe to the genius of Davy and of Stephenson, and a lamp not long afterwards devised by Dr. Clanny. When the safety-lamp was first invented, the ventilating currents in mines were very moderate, seldom attaining a velocity of even 5 ft. per second in the principal roads or airways, while in the working places themselves the currents were very slight. The Davy, Stephenson, and Clanny lamps were fairly safe under these conditions in the presence of fire-damp. But at the present time the air currents in the main roadways of mines often travel at a rate of 20 to 25 feet per second, and at the working places their velocity ranges from 5 to 15 feet per second. Moreover, it is even possible that under special conditions, which may obtain in particular parts of the mine current velocities of 30 to 35 feet may be met with. Under conditions such as these the Davy and Clanny lamps cease to afford any security, and it has been demonstrated by the experiments of the Commission that even the Stephenson lamp, which is generally extinguished by an atmosphere highly charged with fire-damp, may bring about an explosion in currents of fire-damp and air. These facts had already been indicated by the results of previous experiments when the Commissioners commenced their work, but their own investigations so clearly established the great danger of relying upon the Davy and Clanny lamps, and the facts already known on the subject appeared to have received so little attention on the part of managers of mines (great confidence in the safety of those lamps having even been expressed by experienced witnesses), that the Commissioners considered it their imperative duty to direct the attention of the Home Secretary to the fact "that the employment of the ordinary Davy lamp, without a shield of metal or of glass, in an explosive mixture, when the air currents exceed 6 ft. a second, is attended with risk of accident almost amounting to certainty," and that "the Clanny lamp when tested in a similar current has proved to be scarcely, if at all, less dangerous." They hoped the most prominent publication would be at once officially given to this warning. After some delay a circular embodying the substance of it was issued, but without any indication that it bore the authority of the Royal Commission. This action was taken as far back as December, 1880 (they having been appointed early in 1879), yet the Davy and Clanny lamps have continued in use in mines where the elements of danger insisted upon by the Commissioners exist. The Davy lamp had, some years back, been rendered much less dangerous when exposed to strong air currents by the addition of a metal shield partially surrounding the gauze cylinder, or by the provision of an external glass cylinder extending up the gauze to various distances. The latter modification, known as the Jack lamp, if properly carried out, proved to be the most efficient safeguard of the two; a much more important protection has, however, been comparatively recently afforded to the Davy lamp by enclosing it in a case, which protects it to a great extent from the action of currents, but which, at the same time, even when constructed with glass on all sides, considerably diminishes the already very meagre light afforded by this lamp. A lamp of Belgian origin, termed the Mueseler, and which has for many years past been officially adopted for use in the Belgian mines, presents important advantages over the lamps already referred to. These were recognised by the experimental committees of the leading Institutions of Mining Engineers before the appointment of the Royal Commission, and the lamp was then being introduced into some collieries, an action which has since then extended considerably. Some experiments and certain results of practical experience had, however, already tended to throw some doubt upon the wisdom of placing absolute reliance in the safety of this lamp, especially when the precise details of its construction, as worked out in Belgium, were more or less departed from by English makers. The results of the Commission's experiments confirmed the doubts which had been raised by experiments of the Midland Institute respecting the absolute safety of the Mueseler lamp, even when carefully constructed as regards the proportions of its component parts, and demonstrated that under special circumstances, it might cause an explosion when exposed to a current of fire-damp mixture having a velocity of from 6 to 10 ft. per second. Under corresponding conditions, and even in currents of much higher velocities, the cased Davy lamp was found to be perfectly safe, and the establishment of this important fact has led to the adaptation of cases in various ways to the old types of safety-lamps, many so called new-safety lamps consisting, in fact of the Davy or Clanny protected, by enclosure in various ways, from the direct action of the current. Protracted as have been the investigations which the Commissioners have carried out with safety lamps, their publication will, I venture to affirm, convince even those who, because they have not cared to inform themselves of the character and extent of work which was being done, have thought it right and just to publicly reproach the Commission with dilatoriness, that the curtailment of these researches would only have been detrimental to the conclusive and therefore practically important nature of the results arrived at. For these have not only led to decisive conclusions regarding the defects of the best known and most extensively used types of lamps, and the degree of safety and other merits of a large variety of modifications of them, as well as of new forms of lamps, but they will also enable the Commissioners to indicate with confidence, several lamps which combine a great degree of safety with other important merits, and to specify a few among these which, while ranking highest in point of safety, and leaving very little to be desired in this respect, combine with this first essential, the important adjuncts of simplicity of construction and fair illuminating power. It will, moreover, be possible to indicate some directions in which even these lamps are susceptible of improvement. It, therefore, only remains to be hoped that the results of the labour which the Commissioners have devoted to this branch of their enquiry will be accepted with the confidence they merit, and will be speedily utilised both by those who are responsible for the management of mines and by those who control the actions of the miner. When the Commission's investigation of the relative merits of different safety-lamps were already considerably advanced, Mr. Ellis Lever publicly offered a premium of 500*l.* for a miners' safety-lamp, either a perfectly self-contained electric lamp, or other lamp, which, while being of convenient size for carrying about, would continue to give a useful amount of light for not less than 12 hours, and which would "not cause an explosion of gas under any circumstances at all likely to represent conditions which may occur in actual practice." It was proposed that the judges to whom lamps submitted for competition were to be referred should include three scientists, nominated respectively by Mr. Lever, by the Royal Society, and by the Society of Arts. No less than 108 different lamps were sent in, and it need scarcely be said that the determination whether any among them fulfilled the prescribed conditions involved a very extensive series of experiments. The adjudicators appointed included two members of the Commission, who cheerfully consented to take upon themselves this very considerable addition to the voluntary labours already being carried on by them in the interests of the miners. In arranging for and carrying out the tests of these lamps, the adjudicators had the great advantage of the experience gained by the Commission as to the nature of tests best adopted to elicit information regarding the good or bad features of a lamp, and as to the performances of the different types or modifications of lamps already known. Only four electric lamps were submitted, and these altogether failed in fulfilling any one of the conditions laid down, excepting that of being self-contained lamps. As the tests of the various other lamps progressed in severity, the number of promising ones was rapidly reduced, and eventually not one lamp was found completely to fulfil the whole of the conditions under which the premium was offered, although there were several which ranked very high as regards safety and efficiency; foremost amongst these being the lamp of M. Marsaut with three gauzes, and that of Mr. N. Morgan, of Pontypridd. To the constructors of these lamps gold medals have been awarded at the Inventions Exhibition, and it will be found that they rank among the lamps which the Commissioners are able to speak most highly of. But, the premium which Mr. Lever placed at the disposal of the adjudicators reverted to him, and those who have great experience of the behaviour of safety lamps of the various well-known and recently developed types, could scarcely have anticipated a different result, in face of the conditions laid down. Mr. Lever has, since then, again offered a similar premium, this time for "the invention or discovery of an economical, efficient, and safe substitute for gunpowder and other dangerous explosives used in the getting of coal." The Council of the Society of Arts could not see their way to attempt to comply with the suggestions of Mr. Lever that they should award this premium, or appoint adjudicators for that purpose. Apart from the circumstance that there would be much less probability of the owner of the money being called upon to pay the premium, than in the case of the lamp competition, the Council could not have presumed even to suggest the great sacrifice of time in the performance of the very laborious and exhaustive experiments indispensible in this case, to such as would be really competent to perform the work of adjudication, which Mr. Lever appears to think at least as lightly of as of the offer of these prizes. It borders upon the amusing to observe in the article by the Manchester correspondent of the *Times*, to which such prominence was given on the 27th of last June, how the writer heralds offers of subscriptions and of premiums, as illustration of the way in which his hero "gallantly attacks the problem (of accidents in mines) at all points," while he has no encouraging word for the man of science whose disinterested devotion to very arduous work, for which his sole probable recognition would be hostile criticism, or worse, can alone give any point to the "gallant attacks" of philanthropists like Mr. Ellis Lever. The possibility of applying the electric light to the illumination of coal mine workings was one of the most prominent of the subjects which first suggested themselves to the Royal Commissioners as demanding careful study. The superficial observer, in noting the real progress made during the last few years in the facility and success with which the electric light has been utilised, equally upon a large scale, for purposes of display, or for the lighting up of large areas and buildings, upon the comparatively small scale needed for illumination of small dwelling houses and offices, and upon the very minute scale, as in connection with surgical requirements, might have been pardonably led to the conclusion that there existed no very great difficulties in the way of at once presenting the miner with an electric light in almost as portable a form as a safety-lamp, incomparably safer than the best of these, and capable of affording him a much superior light for the entire duration of his longest working hours underground. A little enquiry into the subject demonstrated to the Royal Commission that such a conclusion would be at least very premature, and that, although the subject was one most worthy of patient pursuit, the attainment of really useful results was beset with formidable difficulties. It is one thing to announce in oracular fashion, as the *Times* did, in a leading article last June, "that collieries ought to be lighted in a way to dispense with safety-lamps," "that electricity is the one illuminating medium which can supply the light which miners want, without the flame which endangers them." It is quite another thing to apply the electric light with safety, even along main roadways, in mines in which fire-damp is prevalent. The writer of those lines would have been less confident in his assertions had he sought sufficient information to teach him that the fracture of a glow lamp, or the rupture of a conducting wire, in a mine might be as much fraught with danger as the injury of a safety-lamp or the lighting of a pipe. Had he, moreover, but learned by simple enquiry what progress had been made by patient workers, at the time he was inspired thus to write, towards setting aside those sources of danger, and providing the miner with a portable and efficient self-contained lamp, he would certainly have hesitated to assert that "no proper zeal has been brought to bear upon the conquest of difficulties" in the application of electric lighting in mines, or sneer at "the scientific brains, whom the public may encourage, though it cannot compel, to exert themselves as keenly for the illumination of a murky, dirty coal pit, as in the transformation of a plot of ground in South Kensington into fairyland." The Royal Commissioners' report will deal with attempts which have been made in several of the mining districts to apply electricity to underground illumination; so far as distribution of the light in main roads is concerned, no great progress has been made, though there is now no reason why glow lamps, protected after the manner in use at our Government gunpowder works (as shown at the recent Exhibition) should not be distributed to considerable distances along such portions of a mine, the conducting wires being placed in secure positions and effectually protected. At Risca Colliery, in Monmouthshire, at Harris's Navigation Colliery, near Pontypridd, and at Earnock Colliery, at Hamilton, N.B., a commencement has already been made in this direction with satisfactory results. If, however, the miner is to have an electric lamp for lighting up drifts and working places, it must be supplied to him in a self-contained and really portable form, with absolute protection or isolation of the glow lamp from the surrounding atmosphere, and with a store of power sufficient to maintain an efficient light for 10 or 12 hours. The considerable improvements which have of late been made in secondary batteries, or accumulators, and the advance which has also been made in the construction of constant primary batteries, have led to very important progress toward the attainment of these essentials, since lamps were submitted for competition for the Lever premium about two years ago. Mr. J. Wilson Swan, universally celebrated for his achievements in the matter of glow lamps, who was encouraged by the Commission in the early days of its existence to give his attention to the adaptation of the glow lamp to the miner's use, and has since patiently pursued the subject, has not long since succeeded in producing a lamp which, with its small storage battery, weighs little more than 8 lbs., and which will furnish a light equal to from two or four times that given by the better forms of safety-lamp for a duration of 10 or 12 hours. The beautiful miniature glow lamp which furnishes the light is perfectly shut out from the air and protected from accidental fracture, and the battery will bear swinging about without detriment. Mr. Swan is sanguine that he will ere long be able to effect an important reduction in the weight and bulk of the lamp; and he is not less hopeful of elaborating a primary battery similar in portability and light-giving power, the substitution of which, if successful, for the accumulator would have the advantage of dispensing with the necessity for providing dynamo-electric machines and power for charging the storage cells, though the great advantages presented by electric illumination, especially with arc lamps, of the surface establishments of a colliery will probably lead ere long to the extensive employment of dynamo machines for such purposes. Other workers besides Mr. Swan, such as Mr. Coad and Mr. Trouvé, have been applying small primary batteries to the production of miners' lamps with some promise of success, although as yet the results furnished do not bear comparison with those obtained by Mr. Swan with the storage battery. Those who have spent any length of time under ground, especially in the very low workings which abound in coal mines, and at the high temperature which often prevails in the workings of deep mines, will have experienced the fact that any incumbrance may sometimes become very burdensome, and can well understand, therefore, that the weight and size of even the lightest form of battery with which an efficient light could be maintained for a sufficient length of time may prove grave obstacles to its extensive employment. Moreover, as the electric light can afford no indication of the condition of the atmosphere in a mine-working, its employment may not, even under the most favourable conditions, altogether allow of the safety-lamp being dispensed with. But even if used only as an auxiliary means of illumination in working places, such lights as those which Swan and others will supply will prove very valuable. A similar lamp of somewhat larger size and comparatively much greater illuminating power may also prove invaluable for exploring purposes, especially after accidents due to outbursts of gas when the best safety lamps may be of little use even if they continue to burn. Such electric lamps must indeed become formidable competitors of the Fleuss lamp (included in the recent Exhibition), which has, in conjunction with the portable apparatus for the supply of respirable air to explorers, already performed important service in rendering access to mine workings possible where an ordinary lamp could not burn, and where the atmosphere was too foul to support life for any time. The sudden escape into a mine working of a very large volume of fire damp, the accumulating pressure of which has at length overcome the resistance opposed to it, either by the coal or by the stone which form the floor or the roof of the mine, and the outrush of which is sometimes accompanied by the ejection of very large quantities of disintegrated mineral constitutes the most formidable danger connected with this associate of coal, because little or no warning is received of its occurrence, and because the volume of gas suddenly liberated is often so considerable that the most powerful ventilating currents are for a time inoperative, while their very action may be to distribute gas rapidly in the form of an explosive mixture with air to distant part of the mine workings. In the earlier records of these sudden outbursts of gas when the ventilating currents in a mine were comparatively very feeble men were not unfrequently asphyxiated by the gas which for a time remained but little diluted with air in the neighbourhood of the outburst; on the other hand, the considerable time which, under these circumstances, was required to bring about the production of an explosive mixture, has in some cases facilitated the escape from critical surroundings of those who have been in the neighbourhood of the outburst. It appears that, as the depth of the coal mines has increased both in this country and in Belgium, these violent emissions of gas have increased in frequency. The volume of gas suddenly set free varies very greatly; sometimes it is so considerable that, even with very powerful ventilation, the workings have been restored to a safe condition for work, in regard to comparative freedom from fire-damp, until several days after the occurrence of the outburst. One of the most formidable outbursts of gas upon record is that which occurred in April, 1875, in the district of Mons, at L'Aggrapp, near Frameries, which caused the death of 21 persons. An overwhelming volume of pent-up gas became suddenly liberated; passing up the downcast shaft it was fired at the engine-house, and burned as a column of flame 120 feet high, of the diameter of the shaft. The eruption continued for three hours in almost undiminished extent. The Royal Commission has paid very considerable attention to these remarkable occurrences, with the view of endeavouring to throw some light upon their nature and origin, and it is not impossible that the results of their study of the subject may, when published, at any rate, remove some little of the absolutely mysterious character which has hitherto been their attribute. That these sudden outbursts of gas have been intimately connected with some of the most appalling disasters which have occurred in coal mines appears beyond question, and there is equally little room for doubt that the firing of shots, or use of gunpowder for blasting coal or stone in mines, has been, in many cases, intimately connected with those disasters. The concussion and local disturbances, or breaking up of the coal or stone, produced when a shot is fired, may have the effect of releasing a large volume of gas pent up in the immediate vicinity of the shot, or of determining the sudden outburst of a quantity of gas accumulated under great pressure in the neighbourhood, and the firing of a shot is but rarely quite unaccompanied by the production of flame, or the projection of incandescent particles, whereby gas may become inflamed at the moment of its liberation. The result could in itself scarcely ever be likely to be productive of any serious destructive effects, because the gas would be inflamed before it had time to become mixed with more than a small quantity of air, and certainly not with the comparatively large volume necessary to produce explosive, and consequently destructive, effects. If, however, the gas escapes ignition by the flame of the shot which has released it, or if it becomes liberated at too great a distance from the shot to be reached by any flame that is developed, it will rapidly mix with the air in the workings, filling these more or less extensively with an explosive gas mixture, which as shots are rarely fired singly, is liable to be exploded by the firing of the next shot, the fuse of which is already burning. The production of a sudden outburst of gas, or the liberation of gas by the violent breaking up of coal or stone is, however, not essential to the production of disastrous results by the firing of powder or other explosives in coal mines. Indeed, the opinion has been entertained by those who are inclined primarily to ascribe the occurrence of these disasters to neglect or supineness on the part of colliery proprietors or managers, that coal mine explosions are too readily assumed to have been brought about by a sudden outburst of gas, which affords a comparatively easy and apparently satisfactory explanation when others fail, and one which may have a tendency to arrest sufficiently searching enquiry. The flame or fire projected by the firing of a powder shot, may, without any favouring circumstances, be projected to a considerable distance beyond the face of the coal or stone in which it is fired, if, as is frequently the case, the force developed is sufficient to accomplish the fracture of the bore-hole in which the charge of explosive is confined, and the highly heated products of the explosion are entirely projected from the hole, as if the shot had been fired from a gun. Thus in some experiments made on this head by the Commissioners, in military mine galleries corresponding in dimensions to coal mine workings, and where no conditions prevailed which were calculated to favour the extension of flame from a shot, charges of 1¼ lb. of gunpowder, fired so as to ensure the production of a so-called blown-out shot, extended to distances of about 20 ft., in a capacious gallery representing the

main road of a mine, and to distances of 30 to 35 ft. in galleries of much smaller dimensions, similar to mine workings. In these experiments the powder charges were, in some cases not tamped at all, in others they were tamped with clay. It is by no means an uncommon practice in coal mines to employ the small debris of coal, which is ready to hand in the working places, as the tamping material; and it has been recently demonstrated, in the course of a series of valuable experiments made by the Prussian Mines Commission in the Saarbrücken district, that the volume of flame projected by a blow-out powder shot is very greatly increased when the shot hole has been thus tamped. In an experimental gallery, intermediate in size between the large and small mine galleries used in the Royal Commission's experiments at Chatham with blown-out shots, the charge, about 1 lb. of powder tamped with clay, projected flame to a distance of about 13 ft., in good accordance with the Chatham results, while corresponding charges of powder, tamped with coal dust, and fired under the same conditions, projected flame to about 60 ft. It is evident that the flame from a blown-out shot, even where coal dust has not been used for tamping, may be projected to such a distance as to reach to the goaves of old working places or cavities where a fire damp and air mixture may be lurking which has escaped observation by the official or miner whose duty it is to see that the surroundings are free from fire-damp before shots are fired. This is, however, by no means the only, or even the most prominent, danger which may attend the occurrence of a blown-out shot in even the best ventilated coal mine, quite independently of the possibility of a sudden release of a considerable volume of fire-damp during and consequent upon blasting. But before referring to what now appears to be well established as the chief general source of danger attending the use of explosives in coal mines, I must touch briefly upon the means hitherto employed for searching for fire-damp, and for inspecting the workings of a mine to ascertain that all is safe before men descend to work or before shots are fired. The first effect of introducing a Davy or other safety-lamp into an atmosphere containing small proportions of fire-damp is to cause the flame to elongate, the extremity becoming narrow and more pointed as the proportion of fire-damp increases; when the latter approaches a proportion which produces with air an inflammable, and ultimately an explosive, mixture, a pale blue halo or cap is perceptible over the flame, and this increases with an increase in the proportion of gas, until the cage or gauze of the lamp is filled with flame. With some varieties of fire-damp, however, which are known technically as sharp gas, the gradations are not readily perceived between the first lengthening of the flame and the filling of the cage with flame, consequent upon the burning of a gas mixture which contains 6 per cent. or more of fire-damp. The Davy lamp is generally preferred by the overmen, mine managers, or inspectors for gas-testing purposes; the search lamp is made of small dimensions, so as to admit of the flame being approached pretty closely to the roofs of a working, or of the lamp being inserted into cavities where fire-damp is most likely to be lurking. The flame is always reduced to small dimensions for testing purposes, so that slight alterations in size or form may be more readily detected. An experienced observer, whose eye has been trained to detect the first symptom of change in the appearance of the lamp flame consequent upon the presence of fire-damp in the air, may identify so large a quantity as 2 per cent. of gas in the air of a mine; but even this is doubtful, except in the case of observers, who, like Mr. William Galloway, the well-known mining engineer (formerly Government Inspector of Mines), have specially trained themselves to the discovery and estimation of the proportion of small quantities of fire-damp by the detection of minute changes in the character of the safety-lamp flame, and who may even, perhaps, succeed in thus detecting the presence of 1·5 per cent. of fire-damp. It has, however, now been conclusively demonstrated to be of the greatest importance that responsible persons in coal mines should be furnished with reliable means for expeditiously detecting, without the exercise of any very special skill, smaller quantities of fire-damp than it is possible to identify with certainty, even by the exercise of great skill in the use of a safety-lamp. Hence much interest and moment attach to the efforts which have been made from time to time by scientific men to devise sensitive and reliable fire-damp indicators. The late Mr. Ansell applied in several very ingenious ways some results of Professor Graham's classical researches on the diffusion of gases to the construction of sensitive fire-damp detectors, which, however, did not realise the sanguine expectations of the inventor and others who entered zealously into the application of these instruments, that a delicate and really reliable fire-damp detector had been found which could be expeditiously used in the mine at any moment. The same principles have since been applied, but apparently with no greater success by several foreign inventors of so-called Grisou metres. Two eminent scientists well known to this society, the late Dr. Angus Smith and Professor George Forbes, have proposed to detect and estimate the quantity of fire-damp in the air of a mine by ingenious applications of other important principles in physical science, and the acoustic indicator, lately exhibited by Mr. Blaikley, is a very pretty application of the principle utilised in a different way by Professor Forbes. Various forms of eudio-metrical apparatus have been constructed with the same object; the variations in the density of air due to the presence of different proportions of fire-damp have been made the basis of other gas-indicating apparatus; a test-lamp has been constructed to furnish a flame when burning alcohol, which is much more sensitive than the oil flame of an ordinary safety-lamp; and an electro-photometric test apparatus has been devised by Mr. E. H. Liveing, which appears to be the most thoroughly practical form of gas-indicator shown at the recent Exhibition. This apparatus, in a very portable and convenient form, was made the subject of experiment to determine its delicacy and accuracy, and was afterwards extensively used by a committee (of which I was a member) appointed by the Admiralty to report on the means to be adopted for guarding against the occurrence of explosions due to gas emitted from the coal stored in ships' bunkers, and was recommended for employment in H.M. ships for testing the air in the bunkers. It was found that, with very little practice, there was no difficulty whatever in detecting 0·5 per cent. of marsh-gas or fire-damp in air by means of it. The merits of the most prominent of the several gas-indicators have been made the subject of careful consideration by the Royal Commission, and there is no doubt that there is now no important practical difficulty in the way of identifying in the air of mines, without the exercise of very special skill, smaller proportions of fire-damp than can be detected by those most skilled and experienced in the use of a sensitive safety-lamp for this purpose. The importance of being able to recognise very small proportions of fire-damp in air has become specially evident since the fact has become thoroughly established, by recent careful and comprehensive investigation, that when fire-damp is present in the atmosphere of a mine, in proportions greatly below those necessary to produce a feebly explosive or even barely inflammable mixture, it may yet constitute a most formidable source of danger, by its co-operation with the dust which exists, in more or less abundance, in every mine working. The fact that coal dust adds considerably to the disastrous effects of fire-damp explosions was noticed already more than 180 years ago, and was referred to n published reports by well-known mine inspectors, such as Mr. J. Buddle, who was, during the first half century, the chief mine viewer in the Newcastle district; but Faraday and Lyell were the first to demonstrate, 40 years ago, how important a part might be played by coal dust in aggravating and extending the destructive effects of fire-damp explosions. When investigating, for the Home Office, a serious explosion which occurred in the Haswell Colliery in 1844, they observed (and detailed in their report of 1845) many signs, quite recently described as novel observations by others, that the coal dust was partly burned, and partly subjected to a charring or coking action, by the fire-damp explosion; that it covered the roof, floor, and sides, and the props and pillars of the working places, with friable deposits of partly fused coke-dust, and that, when swept up by the rush of flame, and acted upon as described, it yielded quantities of inflammable gas, which added to the violence and magnitude of the explosion. The lucid account was published of the evidence that coal dust may play an important part in the effects produced by mine explosions possesses great interest; it covers much of the ground gone over by recent workers and writers on the subject, and affords a curious illustration of the case with which the work of the most illustrious men may be overlooked and forgotten, even by those who should be specially interested in informing themselves of the existing state of knowledge on the subject. Several well-known French mining engineers published, many years after Faraday and Lyell's work, observations and experimental results, as new, which were simply confirmatory of those philosophers' original statements and conclusions; and to some extent this was also the case in still more recent publications in this country, by Friere Marreco, and by Galloway. Both these observers, of whom the former worked in association with Mr. Morris and the North of England Institute of Mining Engineers, added, however, considerably to our knowledge of the probable behaviour of dust in mines on the occasion of explosions, and Mr. Galloway performed experiments upon a considerably larger scale than had previously been the case, which led him successively to conclusions not in harmony with each other, but which unquestionably combined to advance our knowledge considerably regarding the possible nature of the operation of coal-dust in propagating and even in developing explosions. Mr. Galloway was certainly the first to enunciate the conclusion that a small proportion of fire-damp is essential to impart to a mixture of air and coal-dust the power of propagating flame, though he afterwards abandoned this conclusion in favour of the one sometime previously accepted by Marreco, to the affect that fire-damp is altogether unnecessary for the conveyance of flame, with explosive effects, by a mixture of dry coal-dust and air. Even his latest publication on the subject tends in the same direction and emphasises his desire to "claim that no earlier author has gone the length of crediting coal-dust with the rôle of principal agents, and relegating fire-damp to a secondary position." The more recent results of other workers in this direction have, however, conclusively demonstrated that this is far too great a length to go, and that while, on the one hand, a dry, very fine, and highly inflammable coal-dust may, when raised and mixed with the air by the force of a blown-out shot, become inflamed, and may then carry flame to very considerable distances, with a rapidity and violence of action similar to that of a fire damp explosion, the extent to which, on the other hand, flame is propagated, under corresponding conditions, by most descriptions of coal-dust, in the complete absence of fire-damp, is very limited. Consequently, fire-damp must play in the majority of cases, at least as important a part as coal-dust, in explosions which may be designated *dust explosions*, in contra-distinction to those which have unquestionably been primarily occasioned by the accidental liberation or accumulation of large volumes of fire-damp in mine workings. In a series of experiments which, after the calamitous accident in Seaham Colliery in the autumn of 1880, I was requested by the present Home Secretary to carry out with coal-dusts, and in which every possible precaution was taken to ensure accuracy in the composition and uniformity of the air and fire-damp mixtures used in the dryness and fineness of the coal, and in other matters essential to the attainment of thoroughly trustworthy results, the fact, which had been indicated by the results of previous experiments, was conclusively established, that the proportion of fire-damp required to be present in the air of a mine, to bring dust readily into operation as an explosive agent, when thickly suspended in the air (as it is when raised by the force of a blown-out shot) borders upon, and is even sometimes decidedly below the smallest amount (2 per cent.) which a practised overman, or mine inspector, can detect by means of a Davy lamp. It was found that, with certain dusts which were very sensitive, either because of the high proportion of combustible matters they contained, or on account of physical peculiarities, the presence of 1·5 per cent. of fire-damp, and even less, sufficed to render them explosive when thickly suspended in the air. Various other points were established by this series of experiments, such as the reciprocal influence of very small quantities of dust upon fire-damp and air mixtures, approaching, in composition, to explosive mixtures, and of very small proportions of fire-damp upon mixtures of much inflammable dust with air, in determining the occurrence of explosions; the fact that some descriptions of mine dust, comparatively very poor in combustible constituents, but possessed of particular physical characteristics, rank equal in regard to sensitiveness with other dusts comparatively rich in inflammable matter; and the fact, since corroborated by the experiments of MM. Mallard and Le Chatelier, of the French Fire-damp Commission, that an absolutely incombustible dust may determine the inflammation of mixtures of fire-damp with air in proportions insufficient to be inflammable under ordinary circumstances provided it presents physical characteristics, which impart to it properties similar to those of certain metals in a very porous condition. No positive evidence was furnished by a large number of observations made upon the comparatively small scale of these gas and dust experiments, that even what may be called sensitive dusts would propagate flame to any considerable distance, when thickly suspended in air, in the complete absence of fire-damp, but the more extensive experiments subsequently made by the Commission, in the Military Mine Galleries at Chatham (in 1882), demonstrated not only that this was the case, but that, even with very moderate proportions of highly inflammable dust suspended in the air in which no trace of hydrocarbon gas was present, a blown-out shot, obtained with 1·5 lb. of powder, and no coal-dust tamping, produced ignitions which extended as far as the mixture of air with sufficient dust to maintain flame extended. The important series of experiments upon a large scale, already referred to, which have been carried out by the Prussian Fire-Damp Commission, at Neun Kirchen, in the Saarbrücken district, in a specially constructed gallery of large dimensions, and resembling a mine gallery in its proportions, have confirmed and also considerably extended the results which have just now been alluded to. They appear to have thoroughly established the principal facts already referred to, which are so important that they may well be succinctly recapitulated:—

1. The sensitiveness of dusts to explosion depends not only upon their inflammability, or the proportion of combustible matter they contain, but also upon their fineness and certain other mechanical and physical peculiarities.

2. The presence of fine coal dust in the immediate vicinity of the working place gives rise to more or less considerable elongation of the flame from a blown-out shot, whether small quantities of fire-damp be present in the air or not.

3. This elongation or propagation of flame by dusts is generally of limited extent, in the complete absence of fire-damp, even if deposits of the dust extend to considerable distances beyond the seat of the shot. The use of coal dust tamping has the effect of decidedly, though not very greatly, favouring this limited propagation of flame by dust.

4. There are, however, some descriptions of very inflammable dust which, when raised in dense clouds by the action of a blown-out shot, and fired by it, will not only continue to carry the flame on, even to distances beyond the confines of the dust deposits, but will also produce explosive effects, in the complete absence of fire-damp, which resemble those furnished by some other dusts, only when there is a large admixture of fire-damp in the air.

5. All the phenomena produced by the burning of, and propagation of flame by coal dust, are intensified by the presence in the air of only small proportions of fire-damp, the required quantity varying with the sensitiveness or ready inflammability of the dust.

It has also been demonstrated by the German experiments that a coal dust ignition or explosion, produced in the absence of fire-damp with highly inflammable dust, can communicate ignition to an explosive gas mixture, existing at a very considerable distance from the point of first ignition, and *vice versa*. It need scarcely be stated that confirmatory evidence was obtained of the fact first pointed out by Faraday and Lyell, that a fire-damp explosion may bring into operation supplementary effects of coal dust, which add considerably to the total destructive effects of an explosion. It appears to be well established that the considerable volume of flame and rush of gas produced by a blown-out shot is indispensable to the attainment with certainty of any of the effects of coal dust enumerated in the foregoing. Inasmuch as blown-out shots are of very common occurrence in blasting operations, it is evident that in dusty mines there is a frequent liability to the production of a more or less extensive ignition or explosion of coal-dust—at any rate when even only very small proportions of fire-damp exist in the air of the mine; and it must be borne in mind that the failure to discover fire-damp by a careful search with a sensitive safety-lamp flame, as hitherto practised, affords no security against the existence in the air of a proportion of fire-damp quite sufficient to determine, or to greatly promote, the propagation of flame by mine-dust. It will be seen, therefore, that it needs not a sudden liberation or a sudden outburst of fire-damp in considerable quantities, through temporary failure of the ventilating arrangements, or through the escape of considerable quantities of hidden fire-damp from goaves, old workings, or cavities, consequent upon sudden changes in atmospheric pressure, to cause the flame which may be projected into the air by the firing of a powder-shot, to bring about extensive explosions or ignitions, spreading over large areas, and possibly communicating to distant accumulations of explosive mixtures of gas and air in old workings. The most serious dangers, arising chiefly from the use of powder in coal mines, have received the anxious attention of the Commissioners, who have, in the first place, considered how far it might be practicable to prescribe effectual means for removing or counteracting the elements of danger presented by the existence of dust accumulations in mines where, even with the most efficient ventilating arrangements in unerring operation, it is impossible to guard against the distribution of small proportions of fire-damp through the air. The fairly complete removal of dust, even only from the neighbourhood of the working places, presents enormous difficulties, and effectual measures for laying or otherwise dealing with the dust, so as to prevent its being disseminated to a dangerous extent through the air by the firing of shots, have yet to be discovered, though such expedients as watering the dust, and impregnating it with some material which might perhaps maintain it in a sufficiently damp condition to prevent its flying, have received much attention. Similarly, other devices, which have been tried with the object of preventing the occurrence of blown-out shots, where powder is used, have failed to furnish promising results. The possible substitution for gunpowder of other explosives which may be applicable to the kind of work performed with it in coal mines, has naturally received attention from mineowners and managers, and the superior merits of various explosive agents, not only in respect to efficiency, but also as regards safety, have been from time to time advocated, generally by interested persons, though they not unfrequently possessed little or no claim to consideration beyond that which lies in the possession of a new fancy trade name. A reduction in the volume of flame produced by gunpowder when used as a blasting agent has been effected by modifications in its composition, whereby the proportions of the two sources of flame, carbonic oxide and alkaline sulphide, produced by the explosion of powder, would be more or less considerably diminished; but the best result attained until recently in this direction had not materially redneed the danger of using powder, either in the presence of an explosive mixture of fire-damp and air; or in the air of a mine in which, at the time of firing a shot, coal-dust becomes thickly suspended, and in which, at the same time, some small proportion of fire-damp exists. Some promising results have, however been quite lately attained in Germany with a special powder produced by the original maker of the] now celebrated Cocoa powder, the publication of which is looked for with much interest. Of the many explosive mixtures, analagous to powder in composition, which have had, or are destined to enjoy, a brief existence, there is not one which, even approximately, fulfils the conditions of a safe explosive agent for coal mines. Special forms of gun-cotton were prepared for use in coal in the early days of the improvements made in its preparation; but the large proportion of the inflammable and poisonous gas, carbonic oxide, which its explosion furnishes, prohibits its employment in this direction; even when the additional oxygen required by theory for the complete oxidation of the carbon is supplied, in the form of saltpetre or other nitrate, with which finely divided gun-cotton may be incorporated (as in the original nitrated gun-cotton, and the similar preparations, tonite and potentite), there is still no reliance to be placed in the explosion of such a preparation being unattended by flame. Nitro-glycerine contains actually more oxygen than required for the complete burning of its constituents, carbon and hydrogen, and hence its detonation in the open air is attended only by the appearance of a lightning-like flash of light. When diluted with an inert non-combustible material (such as the silicious earth Kiesel-guhr), whereby it is converted from the liquid form into a moist, mouldable powder, known as dynamite, its detonation raises to a high red heat the particles of mineral matter with which it is mixed, many of which are projected in a glowing state, like a shower of sparks, if the dynamite be fired in a strong shot-hole. If, as is frequently the case in modifications of the so-called No. 1 dynamite, some proportion of combustible or inflammable material be used, with or without oxidising agent, in conjunction with the inert absorbent, the employment of such a preparation in coal mines must always be attended by a risk of flame being projected. Even with Nobel's blasting gelatine, the latest and most powerful explosive agent (consisting of nitro-glycerine incorporated with a small quantity of guncotton, the complete oxidation of which is accomplished by the excess of oxygen in the nitro-glycerine), a blown-out shot may be attended by the projection of some glowing particles of the tamping used, or of particles detached from the blast-hole, and at the same time exposed to the high heat of the exploding charge. The Commissioners have satisfied themselves by many experiments, of which a considerable proportion have been most ably carried out for them by Mr. W. Galloway, that an explosive mixture of fire-damp (or coal gas) and air may be, and is very generally, though not invariably, exploded by the projection into it of these sparks, or incandescent particles, form a dynamite or blasting gelatine shot; they will even occasionally produce ignition, when projected into air containing only a small proportion of fire-damp, but in which coal-dust is thickly suspended. This nitro-glycerine preparations are too violent and local in their action for use, in the ordinary manner, in coal; they are efficient in hard rock and stone, but they cannot be safely employed in the usual way upon work of this kind in mines where there is a possibility of the existence or liberation of fire damp, or of the production of a dust-laden atmosphere containing a small proportion of that gas. The outline which I have given you, I trust not in too wearying a detail, of the dangers attending the use of explosives in coal mines and of the very formidable, apparently unsurmountable difficulties attending any attempts to approach immunity from the two great elements of danger naturally existing in a very large proportion of coal-mines, namely fire-damp and dust will probably lead you to the conclusion that there is but one effectual method of dealing with the serious question of accidents due to explosions in coal mines, namely, that of enforcing the exclusion of the other great source of danger, by prohibiting the use of explosives. In the House of Commons debate of June, 1878, to which I referred some time since, Mr. Macdonald acknowledged that the provisions of the Coal Mines Regulation Act of 1872, for prevention of accidents through the use of gunpowder in fiery mines, had been productive of great good. A general rule, included in that Act, prescribes that gunpowder shall not be used in a mine during three months after any inflammable gas has been fired in it, unless a competent person, whose duty it is to examine the place where the powder is proposed to be used, and the places contiguous thereto, finds it safe to do so, and accordingly allows the shot to be fired. It also directs that no shot shall be fired except by, or under the direction of, a competent person appointed for the purpose; that if, on examination, inflammable gas is found in such quantities as to show a blue cap on the flame of a safety-lamp, powder shall only be used in stone drifts, stonework, or shaft sinking, when particular, well-defined conditions in the ventilation of those places, are fulfilled, and only when the persons ordinarily employed in the mine are out of it, or of that part where the powder is to be used. Mr. Macdonald insisted, however, that these regulations were insufficient to guard against fire-damp explosions, and referred, in illustration, to the fact that the firing of the shot itself might liberate a large quantity of gas, which no previous inspection would discover. He urged in the strongest terms that, until blasting in any fiery mine

were absolutely prohibited, there must be a continual recurrence of terrible disasters; and, in the debate which followed, there was a general consensus of opinion among the speakers most competent, from personal experience, to express a decided view on the subject (such as Mr. Burt, Sir G. Elliot, and the late Mr. Knowles), that blasting should be prohibited in fiery mines. It was pointed out by several speakers that, while the use of any light except a locked safety-lamp, in a place where there was likely to be an accumulation of explosive gas, was prohibited by the Act of 1872, the firing of shots, whereby a large volume of flame might be projected into the working place, was permissible under conditions which might lead to disastrous explosions. It was admitted that the cost of working coal would be much increased by the enforcement of the suggested prohibition, and, in the evidence taken two years afterwards by the Royal Commission, it was maintained by the majority of the witnesses who were competent to speak from practical knowledge and experience of the state of things existing in districts where powder was largely used, that the abolition of shot firing in the working of coal must be attended by very formidable difficulties, and must, in fact, cause the closing of many pits. The greater number of H.M. Inspectors of Mines held the view that, if the general rule of the Act which relates to blasting is stringently carried out, no additional precautions are necessary. So few, on the other hand, considered that shot firing should not be allowed in any mines where fire-damp is liable to exist, unless all the workmen are out of the mine, excepting those who have actually to fire the shots. I have shown that it is now established beyond reasonable doubt that even the comparatively very small amount of fire-damp which may—at any rate occasionally—pervade the air in portions of mines where thorough ventilation is most effectually provided for—an amount quite insufficient in itself to constitute a source of danger, and not even detectable by the ordinary method of inspection—may determine the production of a disastrous explosion, if under these circumstances a blown-out shot occurs where an accumulation of dust exists; and that it is even possible, in the complete absence of fire-damp, for a blown-out shot to give rise to an explosion in a very dusty working or mine, where the coal is of a specially inflammable and sensitive character. Such being the case the fact cannot be ignored that last year's decision of the late Home Secretary, which raised consternation in many mining districts, to prohibit the firing of shots in any colliery within a period of three months after the existence of gas had been there reported, while the workmen were in any part of the mine, is far from affording the contemplated protection against disaster resulting from the use of explosives in the ordinary manner, inasmuch as the conditions favourable to extensive explosions may exist in mines in which the search for fire-damp, carried out as hitherto, may have failed, for very long periods, to afford any indication of its existence. These considerations undoubtedly favour the conclusion that the suggestion so strongly supported in the debate of 1878, that the use of powder should be prohibited in fiery mines, disastrous as its adoption might be to the coal mining industry in many parts of the country, falls very far short of the necessities demanded by the safety of those employed underground, which could only be thoroughly met by prohibiting blasting in all mines where dust is produced in any abudance at the working places (which would amount to almost complete prohibition), or, at any rate, in all mines where by means of special gas-indicators, fire-damp to the extent of 1·5 per cent. is detected in the air of the mine, and in goaves or other lurking places within a given distance from the place where a shot is to be fired. This most grave aspect of the question, which would have afforded scope for even more highly sensational writing than that which appeared in some public prints a few months ago, had it been under the cognisance of such editorial pens as that which counselled Sir Richard Cross to "shake the Royal Commissioners out of their long but premature repose," has received the anxious attention of these Commissioners. They have considered it their duty not to relinquish their work till they have practically investigated, as far as in their power, any measure or suggestion appearing to afford promise of aid in furnishing definite replies to the following important questions:—

a. Whether sufficiently efficient substitutes for explosives in the working of coal mines exist, to warrant the assertion that their abolition need not interfere very materially with the reasonably profitable working of collieries;

b. Whether, therefore, it is practicable to limit the use of explosives strictly to localities where the absence of every possible risk of explosion can be demonstrated to the satisfaction of the official authorities; or

c. Whether any modifications in the ordinary method of using explosives can be so confidently relied upon to guard against, or overcome, certain dangers attendant upon blasting operations in collieries, that it may be practicable to clearly define and lay down conditions which will ensure the safe use of explosives, either generaily, or in all but special cases, which can be precisely defined.

The improvements which have of late years been effected in mechanical appliances for bringing down coal, or for the taking down of stone overlying thin seams, or in the driving of headings or crossways, have been referred to by me in the early part of this discourse; the Commissioners have made themselves practically acquainted with the working of the most prominent of these, and the power and efficiency of some of them appear to warrant the sanguine expectation that compressed air, and even manual power, may be, at no distant date, brought to bear advantageously, and with such comparative expedition and economy, upon the work to be done in stone or hard coal, in mines where fire-damp occurs, as to render it no hardship to dispense with the use of explosives in some of the descriptions of work where at present they are considered indispensable. The considerable and very rapid increase in volume which freshly-burned quicklime sustains when slaked, led, many years ago, to attempts to apply it to the bringing down of coal; but the idea did not assume a really practical form until Messrs. Sebastian Smith and Moore worked out a simple method of applying the lime so as to ensure the effective operation of the disruptive force which is capable of exerting, and to utilise the considerable heat, developed by the energetic chemical union of the lime with water, in the rapid generation and super-heating of steam in somewhat considerable quantity thus supplementing in an important manner, the force exerted by the expansion of the lime. The public has been made familiar, in last year's and this year's Exhibitions, with the general nature of Messrs. Smith and Moore's lime cartridges, and of the system of using them; briefly, the freshly burned and finely ground lime is compressed into the form of very compact cylinders, and the introduction into a bore-hole of a simple appliance, together with these lime cartridges (the hole being charged with them and tamped in the ordinary manner) enables the operator to accomplish expeditiously the simultaneous application of water throughout the entire length of the charge. Several holes, at suitable distances from each other in the face of the coal, are charged before the watering is taken in hand; they are then set into operation in rapid succession, and after the lapse of several minutes their combined action brings down the coal in large masses. The Commissioners witnessed the performances of these lime cartridges at Shipley Collieries, in Derbyshire, soon after their successful elaboration, and the results of subsequent enquiries and experiments connected with this subject have convinced them that, for coal getting, the lime process can be to a large extent substituted for powder, and that its employment secures comparative immunity from danger, and is unattended by any important practical difficulties. In spite of the obstacles, which have always to be surmounted by any complete departure from old practices and traditions, the lime system has gradually received more or less extensive trial in many of our mining districts, and also on the Continent, and has already taken firm root in some parts of Staffordshire, Yorkshire, and Devonshire, having proved itself capable of competing, and even advantageously in point of economy, with powder in many descriptions of coal, which are so worked as to allow of several charges being applied at one time. It is not contended by the elaborators of the lime-cartridge system that it affords the means of dispensing with the use of explosives, or of specially powerful mechanical appliances, in the removal of stone, or even in some hard coal or in connection with certain methods of working underground; but it is now beyond doubt that in many of the collieries, where the prevalence of fire-damp renders the use of the safety-lamp imperative, the replacement of shot-firing by use of lime cartridges, while unattended by any increase in the cost of getting the coal, would reduce the risk of explosions to those arising from carelessness on the part of the men, or from what should now become the very remote contingency of the use of unsafe or defective lamps. The idea has been entertained that, by surrounding or covering the charge of powder in a shot hole with some material which evolves vapour of water, or carbonic acid, when exposed to sufficient heat, these would be liberated by the firing of the shot in sufficient quantity and with sufficient rapidity to extinguish flame and sparks projected by it. Prescriptions, based upon assumed chemical reactions, for the preparation of extinguishing powders, have been made the subject of patents, but the authors of these suggestions have failed to realise the fact that the exposure of such substances to heat on the firing of a shot would be almost instantaneous, and would, therefore, leave, at any rate, the greater proportion practically unaltered. It was suggested by me to the Commissioners that possibly the sudden liberation of carbonic acid, confined in the liquefied state, in a suitable case, and placed either over or under the charge in a shot-hole, might prove effective in extinguishing flame and sparks, and a number of experiments have been made in this direction, with considerable though not complete success. Some time before the appointment of the Commission, Dr. McNab put into practical execution the idea of using water tamping, in the form of a long cylinder filled with the liquid and placed over the powder charge, with the two-fold object of extinguishing the projected flame and sparks, and of diminishing, by dispersion of the water in the immediate vicinity of the shot, the persistence of the powder smoke, which is a source of much inconvenience and loss of time, if not of danger to the miner. Practical experience appears to have demonstrated that decided economy in time does result from the more rapid clearing of the air from smoke when the water tamping is used in firing shots in drifts; but many careful experiments conducted by the Commission, and on their behalf by Mr. Galloway under my instructions, showed that no reliance could be placed upon the extinguishing power of water, applied in conjunction with gunpowder in the way originally suggested by Dr. McNab. It has been demonstrated, in fact, that in the majority of cases a blown-out powder shot, in the preparation of which water-tamping has been employed, will fire an explosive mixture of fire-damp and air, into which the shot-hole debouches. On the other hand, the raising of coal dust by the firing of a blown-out powder shot in air which contains a proportion of fire-damp below that required to produce an explosive mixture, may not be attended by the firing of the mixture (which, as already pointed out, it certainly would be, if powder were employed in the ordinary manner) provided the water-tamping be very considerable in proportion in the powder charge used. When the Royal Commissioners commenced their labours, in 1879, I suggested to them a plan by which possibly the more violent explosives of the dynamite class might be safely and efficiently applied to the getting of coal. This plan was based upon the principle first developed by me in 1873, in the course of my researches on detonating agents which were then communicated to the Royal Society, of distributing the force developed by the detonation of small charges over a considerable area, through the agency of a column of water, within which the detonated charge was confined. It appeared to me that this principle, which has since received important application in connection with military service, was applicable to affect a modification of the so-called local, or shattering action, which renders a violent explosive like dynamite inapplicable to coal getting, when fired in a shot hole loaded in the ordinary manner, and that the disruptive effects might thus be rendered similar to those of gunpowder, while, at the same time, the quenching of the sparks projected by firing a dynamite shot in a shot-hole might be accomplished by this enclosure of the charge in water. With the kind assistance of Mr. William Smethurst, I carried on a series of experiments in the Garswood Hall Colliery, near Wigan, in 1880, which demonstrated that, as I had anticipated, the operation of dynamite as a blasting agent was so modified by this mode of applying it, that the coal brought down by small charges enclosed in water, compared favourably in regard not only to quantity but also to its condition in respect to size and small proportion of shattered material, with the best results furnished by full powder charges. These results were fully confirmed by others obtained in a more extensive series of trials carried out for the Commission, by Mr. Galloway in the Bute Merthyr Colliery. Many and searching experiments were made, first by myself and afterwards under my direction by Mr. Galloway, for the Commission, with the view of determining to what extent reliance could be placed upon the non-ignition, by the use of dynamite water cartridges, of explosive mixtures of fire-damp and air, and subsequently of non-explosive mixtures of air and gas, in which coal dust was thickly suspended by the action of a blown-out shot. The Commissioners' report will shortly deal fully with these important experiments, but I may briefly state that, while absolute immunity from danger of the ignition of an explosive gas mixture by a blown-out shot was not found to be secured by this system of blasting, such was the case in every instance in a large number of trials when the blown-out shot was projected into air containing fire-damp in proportions approaching that of an explosive mixture, and in which a very inflammable coal dust was thickly suspended. Results confirmatory of these have been quite recently obtained by Mr. A. R. Sawyer, one of Her Majesty's Inspectors of Mines, at Mill Bank Colliery, with another form of nitro-glycerine explosive used in the same manner. It has also been found, in the Commissioners' experiments, conducted by Mr. Galloway, that the superposition of the water-tamping, according to Dr. McNab's original plan, over a dynamite charge, appears to afford security against the ignition of a dust-laden mixture of air with a somewhat considerable proportion of gas, and these results have been borne out by experiments recently made by members of the German Fire-damp Commission, consequent upon their learning of the results which we have obtained. In these cases the comparatively moderate cleaving action of the dynamite, secured by its enclosure in water, and which renders it commercially applicable to coal-getting, is not secured; but for blasting stone with dynamite, gun-cotton, tonite, or gelatine-dynamite, in coal mines where dust and some proportion of fire-damp may co-exist, the use of water-tamping may prove to be sufficient to afford perfect security.

Even while actively engaged in the completion of their report, the Commissioners are still pursuing this subject experimentally, with the desire of furnishing, as far as in their power, decisive and thoroughly reliable data regarding the amount of security which appears to be afforded by these methods of working, against the most prominent and prevalent sources of danger in connection with the uses of explosives in coal mines, and, while I have been engaged upon this address, a still more simple method of applying water to counteract the dangers arising from blown-out shots has suggested itself to Mr. Galloway, preliminary experiments with which have furnished most promising results. I have now attempted to give you a fairly comprehensive outline of the progress made within the last few years towards a thorough comprehension of the nature and causes of those dangers attending the work in coal mines which most prominently direct public attention to the perils of the miner's calling, and in the advances already made and still rapidly progressing towards the provision of the miner with really safe and efficient underground illumination, with efficient substitutes for explosives for a considerable proportion of the work connected with coal mining and with methods of using explosive agents, where these cannot be dispensed with, so safe that the terrors which have attended blasting in mines may be confidently expected speedily to fade away. Imperfect as this sketch has necessarily been, I venture, therefore, to believe that I have demonstrated that we have made most satisfactory and important progress in all of these several directions, thanks to the labours of professional associations, of scientific and practical experts, and I think I may also say, thanks to the exertions of the Royal Commission on Accidents in Mines. I have been led to refer more fully than I had first intended to the work which had been performed by the Royal Commission—the results of which in detail will shortly be in the hands of the public—because I felt sure that the members of the Society of Arts would take a most lively and sympathetic interest in the labours of men who have not allowed themselves to be discouraged by unjust attacks and ignorant criticism from endeavouring to carry to a useful termination the arduous work which, at Her Majesty's desire, they cheerfully took upon themselves. The Commissioners have been silent while hard things have been said of them; but it were idle to deny that they have acutely felt the injustice reflected upon them by some writers in the public Press, who, while posing as judges and philanthropists, have not earned for themselves by knowledge acquired, or by work performed, the right to criticism. During the four years which have passed since the Commission submitted their preliminary report, several among them have ungrudgingly devoted time, which should have been theirs for needful rest from arduous official and scientific work, to pursue the laborious and often discouraging investigations which fell especially to their lot. Thirty years' personal experience of the work of experimental committees has taught me that *ad interim* reports are not unfrequently worse than valueless, and this would certainly have been the case had the Commissioners attempted during this interval of time to make any so-called progress reports, because conclusions or suggestions might have been put forward in them which would have had to be afterwards recalled, or incomplete data given, which might have been misleading, and, therefore, even dangerous. As regards the question of the unsafe nature of certain so-called safety-lamps, however, I have pointed out that the Commissioners considered it their duty, just five years ago, to report to the Home Secretary in no hesitating terms, in the belief that their statements would have been published,—and it is no fault of theirs that the public was not informed of their strongly expressed conclusions on this subject, but has been, on the contrary, recently told in the *Times* by a well-known mining engineer that the results of the Royal Commission's labours "have not even extended to the official condemnation of the known unsafe lamps," The daily journals have at any rate chronicled the activity of the Commission by recording the dates and *locale* of their frequent meetings, and have been cognisant, therefore, of the fact that their places of work was easily accessible. This being so, it is somewhat matter for surprise that the writer of very condemnatory paragraphs in an editorial article suggested by correspondence published in the *Times* last June, should not have cared, in the first instance, to inform himself, however imperfectly, of the kind of work upon which the Commission were engaged, and to take that opportunity of seeking some little correct information on the subjects with which his graphic pen was directed to deal. Had he done so, he would scarcely have instructed the public that "a huge majority of colliery accidents arise from explosions;" that "coal mines generate an explosive gas, which, when collected in a quantity and exposed to a flame, ignites, and blows into fragments the workings in which the vapour and flame meet;" "that every coal mine has its explosive gas," or that often "often the miner has opened the door of his lamp to light up the cavern, already perhaps darkening with the heaviness of the gas-laden atmosphere." I will do him the justice to believe that he would not have felt disposed, after even very brief enquiry, to endorse as "not exaggerated" the declaration of the "strenuous and benevolent correspondent," Mr. Ellis Lever, "that the delay in the issue of the Commissioners' Report was "to the eternal discredit of Royal Commissions." After all, however, it rests entirely with the public Press to decide for itself whether the ends it has in view are such as to render it desirable to seek for correct information before administering public condemnation. But, with a public official, especially when connected with the very Department of State most directly concerned in the work of the Commission, the case is very different, and is scarcely to be credited that the gentleman entrusted with reporting to the Home Secretary upon the circumstances attending the explosion last summer at Clifton Hall Colliery, should not have thought it worth his while to ascertain, by enquiry, which could not but have been of immediate service to him, whether the delay in the completion of the Commissioners' report was "unaccountable." To this society, which has always distinguished itself by its encouragement of earnest workers, and its just judgment of their labours, I have ventured, as one of its members, to make these comments, which could not be uttered by me in my capacity as a member of Her Majesty's Commission, whose duty it is simply to report the results of their labours when they have, to the best of their judgment, fulfilled the duties imposed upon them.

Meetings of Public Companies.

THE CONSOLIDATED MINING COMPANY.

The fifth ordinary general meeting of shareholders was held at the Guildhall Tavern, Gresham-street, on Wednesday,

Mr. H. W. SPRATT in the chair.

Mr. ERNEST H. COLLINS (the secretary) read the notice convening the meeting. The report of the directors was taken as read.

The CHAIRMAN said the first clause in the report treated of the difficulties they had had in carrying on the company, by reason of the inability the directors had in getting gentlemen to join them in the direction. Mr. Swan undertook to be a director, but living, as he did, at Newcastle, he had only been able to attend two meetings, and he had, therefore, resigned his seat, as had also Mr. Applegarth, in consequence of his having gone to America. The report also referred to the illness of Mr. Towne, and it was with the deepest regret that he had now to inform the shareholders that since the report was issued Mr. Towne had died. The company had thus lost one of the best friends it ever had. His remaining colleague, Mr. Bergtheil, and himself had done all they could to get the vacancies filled up, but as the board received no pay for two years and a half, and had to do a good deal of work, the shareholders had not come forward. He hoped, however, that some of the shareholders would yet come forward, and he was pleased to say that one gentleman holding 400 shares had consented to join the board. With regard to the American properties there had been no discoveries either in the South Aurora or the Eberhardt Mines. The company was, unfortunately, saddled with 120*l*. a year for taxes. The mill had been dismantled, and every other expense cut off; but if the Government taxes were not paid the property would be seized. It was a matter for the shareholders to consider. He had known the company for a great number of years, and he had hoped from time to time that a discovery would be made in their own property, or in the Eberhardt Mine; but up to the present time nothing of any importance had been discovered. It was, therefore, for the shareholders to decide whether they should let the company go, or raise money to keep it on for better times. The report then dealt with the Corsican properties. There he really thought they had obtained a jewel, and that with a little further assistance they would be in a position to do what had not been done for some years—to pay a dividend. He based his statement on a report made by a very practical man, the manager of large chemical works at Newcastle-on-Tyne. Calculations were made as to the probable results of the working, and these had been sent to the authority he was referring to, and he had stated that he saw no reason whatever why the calculations should not be realised. If this should turn out as they hoped their property would become of very considerable value. It would be remembered that the Corsican property was leased to the Corsican Copper and Chemical Company on these terms:—That those who subscribed to that company should first have 10 per cent. for putting up the additional works, and after that the Consolidated Company was to receive 8000*l*. per annum, which would enable the company to pay the interest on their debentures, and also about 5 per cent. on the ordinary shares, the profits being divisable into three parts—one for the Corsican Company, one for this company, and one for the founders of the first-named company. If such an arrangement could be brought about it would be very important for the interests of this company. At the date of the last meeting it was stated that reduction works had been put up. The plans were approved by the Government, and the works having been set going it was thought that they would at once make returns, but the sulphurous fumes escaping from the chimney destroyed the pro-

party in the neighbourhood, and as some of the inhabitants considered the fumes injurious to health, the company was compelled to get out plans for the absorption of the gases, and to manufacture sulphuric acid on the spot. The plans were there, and they were similar to those which had been carried out with great success at Newcastle-on-Tyne. It was to be recollected that they could get a much better price for sulphuric acid in Marseilles than here. Mr. Anderson, the Chairman of the Corsican Company, had written a note in which he said that he did not see any reason why the new company should not be a very healthy one for its own shareholders, and be the salvation of the Consolidated Company. Mr. Anderson was an engineer of well-known celebrity, and he had backed up his opinion by putting 1400*l.* into the new company. They had tried all they could to get the necessary capital together; but owing to the general depression the general body of the shareholders had not come forward. However, Mr. Anderson, the board, and their friends subscribed 9500*l.* This would not, however, give them working capital, and Mr. Anderson refused to go on unless a further 4000*l.* were subscribed. They had therefore consulted amongst themselves, and they had conditionally subscribed for 2000 shares. If the shareholders would take a *pro rata* allotment of the Corsican shares the business would be carried out; if not the scheme would have to drop through. The shareholders had every inducement to carry the scheme through, and he was very pleased to say that since the report was issued several of the shareholders had expressed their willingness to support the proposal set out by the directors. The payments would be extremely easy—one-half now and the balance in half-crown calls once in two months. He sincerely hoped that the general body of shareholders would come to the rescue, for it was not to prosecute a speculative venture, but really to start a good business, while giving their shares in the old company a positive market value. (Hear, hear.) The other assets belonging to the company consisted of a few shares and debentures of the British Tintic Company, and the Gilbert and Chandière Company, and both of these securities had been deposited for advances made by the directors from time to time to carry on the concern, and as soon as the money is repaid they would belong to the company again. Mr. Cadogan, who for many years had been the secretary of the company, had been compelled to resign that position on account of advanced age and feeble health. They were, he need hardly say, extremely sorry to lose the services of one who had been so long with them. The office expenses had now been reduced to 100*l.* a year, which was about as low an amount as such a company could go to. The board had not published the accounts, as there were no funds with which to defray the expense. Indeed his colleague and himself had had to call that meeting at their own expense; but a statement of the debts and assets of the company had been prepared which he would read. The Chairman then read the statement showthat the debts amounted to 1931*l.*, the bulk of it for fees, which, the Chairman said, could easily be settled. The amount of cash at the bankers was 12s. 10d.—an amount for which their bankers would hardly thank them. In conclusion, the Chairman urged the shareholders to support the scheme for starting the Corsican Company on a fair basis, believing that the results would amply justify the outlay, and moved the adoption of the report.

Mr. J. BERGTHEIL, in seconding the motion, referred with deep regret to the death of Mr. Towne, and warmly commended the Corsican scheme to the support of the shareholders.

Mr. JOHN WALKER asked what was the amount of the debentures?

The CHAIRMAN replied that it was 30,000*l.*, but the interest was payable only out of profits. No interest had been paid, and the debentures were overdue; but 25,000*l.* of the 30,000*l.* was held by shareholders in the company and their friends.

In the course of the conversation which ensued the Corsican scheme was cordially approved by Mr. KING, Mr. WILLIAMS, Mr. WALKER, and other shareholders, many of those present agreeing to take at least their *pro rata* proportion of the Corsican shares. It was also the general opinion that the American property should not be abandoned, in view of the revival in America and the improved prospects of the Eberhardt Company.

The report was unanimously adopted.

The CHAIRMAN then formally moved the following resolution:—That the directors be, and they are hereby, authorised to issue to the shareholders of this company 2000 shares of 2*l.* each in the Corsican Copper and Chemical Company (Limited), in the following proportion:

To every holder of shares up to	30		1 share of 2*l.*	
„	from 30 to	50 shares,	2 shares of 2*l.* each	
„	„ 50 to	100 „	3	„
„	„ 100 to	200 „	4	„
„	„ 200 to	300 „	5	„
„	„ 300 to	500 „	6	„
„	„ 500 to	1000 „	7	„
„	1,000 and upwards	„	10	„

At the invitation of the CHAIRMAN, and with the approbation of the meeting, Messrs. King, Walker, and Williams consented to join the board, and the wish was expressed that Mr. Lovering should be invited to fill the fourth vacancy.

The meeting closed with a cordial vote of thanks to the Chairman and his colleagues.

BRATSBERG COPPER MINING COMPANY.

A general meeting of shareholders was held, at the offices of the company, Austin Friars, on Thursday,

Mr. J. H. MURCHISON, F.R.G.S. in the chair.

Mr. H. MURCHISON (the secretary), read the notice calling the meeting.

The CHAIRMAN called upon the committee to make their report.

Mr. BARKER said that on behalf of the other members of the committee he had been requested to relate the issue of the enquiries into the financial position of the company. In order that there might be no misunderstanding the report had been drawn up in writing, and he would read it as follows:—

"Mr. Chairman and Gentlemen,—I have been requested by the other members of your committee to report to you the result of our enquiries into the financial position of this company.

Since we were appointed we have devoted a great deal of time to this subject, and have made the most careful enquiries into all matters connected therewith. We have held no less than 10 meetings, and have had several interviews with the directors and officers of the company collectively and separately. We have taken legal advice as to the position of the company and employed a professional accountant to verify the investigations which I myself personally made, as to its accounts and financial position. I will not detain you with lengthy details and statements of figures, firstly because we are advised that it would not be to the interest of the shareholders that we should go into details at this stage, and secondly, because the statements of accounts will shortly be laid before you when they are made out at the end of the year, and when we shall probably have an opportunity of discussing them more fully. I shall simply confine myself to stating to you the general results which the committee have arrived at, so far; and before I do this I would add that we have had personal interviews with several of the largest shareholders, many of whom have either personally or by proxy visited the mine, and they are one and all of opinion that, properly managed, we have a splendid property, and if working capital is required to carry it on they are willing to find it upon terms that would not be onerous for the concern. These shareholders however who will come forward to do this are of the same opinion as that at which your committee have unanimously arrived—'That if working capital is to be found and the property of the company saved, the management of the concern should be in other hands, and that a fresh board of directors representing the largest shareholders should be elected for this purpose,' and in this opinion we are backed up by three out of five of the directors, and these three gentlemen have tendered their resignation and consider with us and all the shareholders whom we have consulted, that the interests of the company would be served by the resignation of the remaining two directors. They are willing to listen to our counsels and, as owing to the casting vote of the Chairman, the other directors are powerless; our negociations for the raising of further capital and for the change of management are at a deadlock. We hope that to-day they will reconsider their determination, and so enable us to proceed with the legitimate business of the company, as otherwise we shall be obliged to call a special meeting of the shareholders—which is a very long, tedious, and expensive process—in order that these obstructions may be removed, but before doing this I would again beg of these two gentlemen not to oppose the wishes of their co-directors and the wishes of the large body of the shareholders who have done us the honour to ask us to represent them in this matter. I, therefore, gentlemen, must ask you to allow me to propose a resolution adjourning the meeting This delay is needed in order to call a special meeting, to ask these two gentlemen to resign, or if they place their resignation in your hands to-day, and a new board be elected, the time will be needed to enable the new board of directors to lay before you a scheme for the reorganisation of the finances of the company, and this should be done with as little delay as possible, so that we may be in a position to take advantage of the rise in copper which every day seems more imminent.—F. C. BARKER."

Mr. BARKER said the general results of the committee was that they had had personal interviews with several of the largest shareholders, many of whom had personally, or through their agents, visited the mines, and they were one and all of opinion that, properly managed, they had a splendid property, and that if working capital were required to carry it on they were willing to find it on terms which would not be onerous to the concern. Those largest shareholders were, however, of the same opinion as the committee—that the management of the concern must be in other hands, and that a fresh board of directors, representing the largest shareholders, should be elected for this purpose. In this opinion they were backed up by three out of five of the directors of the company, who considered that it was to the interests of the company that the remaining two directors should also resign. These two gentlemen were unwilling to do so, and, owing to the casting vote of the Chairman, the other directors were powerless, and their negociations were, therefore, at a dead-lock. It was hoped that those two gentlemen would to-day reconsider their determination, and so enable the company to proceed. Otherwise the committee would be compelled to call a special meeting, in order that these obstructions might be removed; but the committee begged those two gentlemen not to oppose the general wishes. He proposed—"That this meeting be adjourned to Thursday, the 17th December next, at 2 o'clock in the afternoon, such adjourned meeting to be held at the offices of the company."

Mr. S. YORK (a director) said he agreed with what Mr. Barker had said regarding the resignation of the directors, and he had written his resignation, which he would now hand to the secretary. He was quite willing to make room for others, and he only wished that they would carry on the mine to a success.

Mr. DUNN (director) also said he had taken time to consider his decision because he was of opinion that it was unnecessary to send in his resignation at a period when the shareholders were ignorant of the sentiments of the committee, and, in the absence of any sufficient reason, he thought it was not treating his constituents well to throw the thing up. He should be sorry to desert the ship till he saw the lifeboat putting off to the rescue. He considered the proposition of the committee the only course for saving the property. The committee, he was told, were prepared to advance all the money that was required to carry on the concern, and he felt that the old board were utterly powerless to effect such a consummation as that. Therefore that was a very strong reason why he should resign. Some of the parties who were prepared to advance the money made it a condition that the present board should resign, and he fell in with that view most cordially. As to the report of the committee he thought it was a little too strong when it spoke of the wish of the three retiring directors, because he had not expressed any wish that the two remaining directors should retire, but what he had said was it was a pity they did not retire. He was quite sure, from what he had seen of those two gentlemen, that it was ridiculous for him to suppose that they were not as solicitous as he was himself for the good of the company; of course they did not all take the same view of things, but personally he thought he was quite justified in taking his present course, and he read a letter embodying his reason for doing so.

Mr. BARKER, replying to an observation in Mr. Dunn's letter that the mortgagee had threatened to foreclose, said he did not know what the mortgagee might have threatened before the committee commenced their work, but certainly he might say that since the time the committee had had interviews with the mortgagee that gentleman had not at all threatened to foreclose; on the contrary, he was acting in the most harmonious manner, and was willing to give the company every time to make the necessary arrangements for finding the working capital.

Mr. BERGTHEIL, one of the committee, in seconding the resolution said, he regretted that Major Heane did not think it desirable to come to the meeting, and that he would appeal to the Chairman, Mr. Murchison, in the interest of the company to add his resignation to that of the remaining directors, and thereby to give the body of the shareholders an opportunity to elect another Board or even to re-elect the present directors or some of them, Mr. Murchison's persistency in his present course of refusing to resign would not only put the company to a great deal of expense, but the committee to a great deal of unpleasant and unnecessary work, even if he, Mr. Murchison, did not by such delay jeopardise the property of the company which everyone admitted was so valuable.

The CHAIRMAN declined to enter into the general question, but expressed the hope that, at the date of the adjournment the annual meeting would also be held.

The resolution was then put and carried unanimously.

A SHAREHOLDER: Will you not give us some reasons, Mr. Chairman?——The CHAIRMAN: Perhaps before the adjourned meeting I will do so.

Mr. MURCHISON left the chair, and the shareholders present in the room signed a requisition under the 56th Article of Association, to the directors to convene an extraordinary general meeting to consider as to removing the two remaining directors, Mr. Murchison and Major Heane. The committee were requested to send out a circular to the absent shareholders requesting them to sign the requisition.

The annual report of the West Cumberland Iron and Steel Company, for the year ending October 3rd, states that the balance of loss from last year was 8106*l.*, and the gross profit on iron and steel works during the past year 5289*l.* The charges deducted are—debenture interest, 7143*l.*; bad debts, 339*l.*; total, 7482*l.*; leaving a loss balance on ironworks, 2193*l.*; loss on collieries for the year, 15,769*l.*; total loss outstanding on 3rd October, 26,069*l.* The directors have not deemed it expedient to place any amount this year to the depreciation fund or the redeemable plant &c. The small amount of gross profit on iron and steel is entirely attributable to the great deficiency of orders, especially in the first quarter of this year, during which period the steel railmills had only two weeks' work. The colliery loss is increased by the same cause, and the directors see little prospect of improvement without more regular work and an advance in the price of coal. It is difficult to speak with much certainty as to the future, but the directors are of opinion that the works are in such a position that a slight revival in the iron and steel industries, of which there are some indications, will soon make theirs a dividend paying concern. As the demand for rails is so limited, the directors have introduced other branches of manufacture into the works, one of the principal being that of steel sleepers, the demand for which is likely to be considerable

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MESSRS. Freeman and Bloomfield, the London agents of the Kimberley Central Diamond Mining Company (Limited) have received the following telegram from the company's head office at Kimberley:—Week ending November 14—Blue ground hauled 3900 loads; washed, 1200 loads. Diamonds found, 1450 carats.

The LISTS of APPLICATIONS will CLOSE for LONDON on TUESDAY 24th, and for the COUNTRY on WEDNESDAY 25th instant.

Subscription for 96,052 Shares, of £1 each, at the price of Four Shillings per Share.

Payable 1s.	0d.	per Share on	Application.
2	0	„	Allotment.
0	6	„	1st February, 1886.
0	6	„	1st June, 1886.

Total 4 Shillings per Share.

THE NEW LISBON-BERLYN (TRANSVAAL) GOLD FIELDS

(LIMITED)

Incorporated under the Companies Acts, 1862 to 1883, by which the liability of the shareholders is strictly limited to the amount payable as above on their shares.

CAPITAL £450,000, IN 450,000 SHARES OF £1 EACH,

Of which 353,948 shares have been allotted at the prices stated in the proposed scheme of reconstruction of the Old Lisbon-Berlyn Company, the balance of 96,052 shares being now offered for subscription.

The directors of the New Lisbon-Berlyn (Transvaal) Gold Fields (Limited) are prepared to receive applications for the above-mentioned 96,052 shares of £1 each, at the price of 4s. per share, payable as above.

The New Lisbon-Berlyn (Transvaal) Gold Fields (Limited), as is well known, has been formed to acquire the Lisbon and Berlyn Estates, with all the machinery and plant of every kind owned by the Old Lisbon-Berlyn Company, including 60 stamps. A 10-stamp mill being already erected, and ready for work.

The amount disbursed for the properties, and the outlay made for machinery, wages and otherwise, by the old company, in cash and shares (exclusive of £350,000 of its debenture stock outstanding) has exceeded £450,000. The price of issue, viz., 4s. per share, is practically, therefore, at the rate of less than one-fifth part of the above outlay.

Power is reserved to the company to issue £60,000 debentures, of which £35,000 is for the purpose of exchanging the same amount of debenture stock of the old company outstanding and above referred to.

With a view to ensure complete success in the applications for these shares, the directors have made a contract with certain persons to guarantee for a commission the placement of the whole of the 95,052 shares for subscription. Shares (if any) not applied for, will be allotted *pro rata* amongst such guarantors. The placement of the entire share capital of the company is thus assured.

The issuing of £1 shares below par is made pursuant to special powers granted by the Memorandum and Articles of Association of the company.

Applications for shares must be made on the enclosed form, accompanied by the payment of 1s. per share.

If a less number of shares be allotted to an applicant than applied for, the surplus money will be applied in payment of the amount due on allotment. The balance will be returned forthwith, without deduction.

The allotment of the shares will be made by the directors strictly *pro rata* to all applicants.

The only contract entered into beyond the formal contracts relating to the engagements of the secretary and other officials of the company and hire of offices, is the one herein referred to, between sundry persons guaranteeing the application for the total number of shares now offered for subscription. It is dated the 6th day of November, 1885, and is made between the New Lisbon-Berlyn (Transvaal) Gold Fields (Limited), of the one part, and by the various guarantors of the other part, whose names, and those of the parties to the contracts with the officials and for the hire of offices, subscribers for the shares will be considered to have waived their right to have set out.

The Articles of Association can be seen at the offices of the company, and prospectus and forms of application obtained of the Capital and Counties Bank (Limited), 39, Threadneedle-street, E.C., the Standard Bank of South Africa (Limited), 10, Clement's-lane, E.C., the bankers of the company, and of the secretary at the company's offices.

By order of the Board,
C. P. SIMPSON, Secretary.

110, Cannon-street, E.C., 20th November, 1885.

Issue of 96,052 Shares of £1 each, at Four Shillings per Share, without furthur liability.

APPLICATION FORM.

To the Directors of the New Lisbon-Berlyn (Transvaal) Gold Fields (Limited).

GENTLEMEN,—Having paid to your bankers the sum of pounds shillings, being deposit of 1s. per share upon application for shares of £1 each in the New Lisbon-Berlyn (Transvaal) Gold Fields (Limited) to be issued at 4s. per share, I request you to allot me that number, and I hereby agree to accept the same (or any smaller number that may be allotted to me), and to pay the balance in respect thereof upon the terms of the circular letter dated 20th November, 1885.*

Name in full .....
Address.....
Signature .....

Date.....1885.

* If applicant desires to pay up the whole amount payable on allotment, he should sign as follows:—

I desire to pay in full on allotment.....

The LIST of APPLICATIONS will CLOSE for LONDON on TUESDAY, the 24th, and for the COUNTRY on WEDNESDAY, the 25th inst.

THE report of Schwab's Gully Diamond Mining Company (De Beer's Mine, Limited) for the quarter ending September 30, states that no hauling has been done during the quarter. The company has washed lumps for the past 43 days, during which time 9075 loads were washed, yielding 2879¼ carats, sold for and valued at 2175*l.* The proceeds per load were 317 carats, realising 4s. 9½d per load, or 15s. 1¾d. per carat. The diamonds on hand from last quarter 1464½ carats, valued at 1140*l.*, have since been sold for 1200*l.* The balance of profit and loss account—9600*l.* 2s. 4d.—your directors recommend should be dealt with as follows:—15*l.* 11s. 8d. being 5 per cent. of the net profits for the quarter (311*l.* 14s. 1d.) to be carried to general reserve fund, increasing it to 2858*l.* 17s., and that the balance—9584*l.* 10s. 8d.—be carried forward.

On Monday night the officials of the Yorkshire Miners' Association, acting upon instructions received from the recent conference, caused notices to be forwarded to all collieries in South and West Yorkshire in order that miners may give notice for an advance of wages. It will be remembered that an agreement was come to that all notices, fortnightly and monthly, should be given at the same time. Each miner will, without compulsion, be allowed to sign and hand in his own notice, so that before the Parliamentary elections are over the greater portion of the miners in Yorkshire may be on strike.

In answer to a correspondent Sir Richard Cross has written to say that the report of the Royal Commission on Accidents in Mines will be presented before Parliament meets.

Mining Correspondence.

BRITISH MINES.

BEDFORD UNITED.—H. Trezise: We are making fair progress in rising towards the winze, which is sunk below the 127 north lode. The lode in the rise is 3 ft. wide and worth 7*l.* per fathom. The tribute pitches on this lode continue to yield ore and mundic in paying quantities.—M'Callan's Shaft, Bridge Lode: In the 90 driving west the lode is at present unproductive; but in opening on it going east it appears to have a more promising appearance, containing good stones of yellow ore of good quality. In the 75 the lode is a good size, producing ore and mundic, but not sufficient to value. In the 62 east the lode is 3 ft. wide, having a promising appearance, yielding saving work for ore and mundic. No. 1 stope in the bottom of the 62 is worth 7*l.* per fathom. No. 2 in the back is worth 4*l.*; No. 3, 5*l.*; No. 4, 4*l.* In the 62 west the lode is a fair size and the ground is good for driving. The pitches on this lode are all yielding ore and mundic in paying quantities. The work of the mine throughout is progressing satisfactorily, and the machinery all in good ore.

CASHWELL LEAD.—John Peart, November 14: The heading going west in copper haxle is very hard at present, there is a good vein and it is well mixed with ore, is worth 20 cwts. of lead ore per fathom. The vein in drift going west in the above stratum is not looking so well this week, we still have part vein but not so much ore, we may have a change for the better in a few days. The drift going east below scar limestone is now being driven in the vein, but so far do not see much change. The heading in east end in slatey haxle has improved a little, but does not yield ore very fast, it is worth 12 cwts. of ore per fathom. We have delivered to the executors of Joseph Denning 30 tons of lead ore at 7*l.* 12s. 6d. per ton.

COED-Y-FEDW AND PANT-Y-BUARTH LEAD.—R. Prince, November 19: The 112 west is opening out some very good stoping ground, the lead in the roof being from 3 to 4 in. wide, solid, and the driving is worth fully 10 cwts. to the fathom. The 90 west has also a very fair show of lead in the forebreast, and there also we are opening out ground which will pay for stoping. The tribute pitches remain without change.

CRAVEN UNITED.—David Williams: The main cross cut from Blackhill adit level has been extended north upon the cross vein 6 fms; this lode is to-day much wider, with a large cavity in the centre, discharging a stream of water filled with limespar and sulphate of barytes, and lined with nice curves of blue lead, &c., which, in this district, is always looked upon as a safe indication of leading to a good deposit of minerals. Gill's shaft is sunk below the 15 fm. level on the hade or north wall of the lode, and producing good branches of lead ore. Our surface dressing operations are vigorously proceeded with, and I hope soon to have a good parcel of ore in course of smelting.

CREIGIOG.—H. Hotchkiss, November 18: Since my last report no change has taken place in the character of the lode or the rock in the 130 end west calling for any remarks. The driving of this end is being urged on with all speed.

CARN CAMBORNE.—W. C. Vivian, November 19: In driving the 105 fm. level, north on central cross course, we have advanced 6 fms., but have not yet struck any lode.

D'ERESBY.—William Sandoe, November 13: The Gorse shaft is now down from 3 to 4 fathoms below the No. 6 level; the ground is good, and by extra working we shall soon be down 10 fathoms. The water is lowering gradually in the sump on the hanging, where the rich ore is, and this point will soon be dry. The lode in the south stope at the new shaft is looking very well, better than when last reported, and I expect will yet improve further on. The lode is richer a little south of the present point of working; this we can see in the top part of the stope. Everything is going on well at present.

D'ERESBY.—William Nance: The sinking of the Gorse shaft is progressing very rapidly, and will soon be down for another level. The part of the lode carried in the shaft is more congenial for lead, very porous, and it is thought by the agents that as soon as this shaft gets below the winze, in which there is a rich leader of lead 5 ft. wide, worth 5 tons per fathom, it will drain the winze and the stopes. This is very important, as the shaft is going down at the rate of 5 fathoms a month, and will very soon open out a very extensive section of good stoping ground. The favourable character of the lode both for sinking rapidly and for producing lead at a greater depth is a most encouraging feature in the mine, and it has long been considered by practical authorities that depth only is required to make a good mine.

D'ERESBY.—J. Roberts, Wm. Sandoe, November 18: The new lift of pumps reached here on Monday, and since then the Gorse shaftmen have been engaged fixing the necessary timber required in the shaft, setting the new line of rods, &c., and hope to complete the whole early to-morrow, when the sinking will be resumed with the new lift, and as by next week we shall get further into the lode we shall then be able to give you some particulars about it. At present a portion of the lode we are carrying in sinking looks very kindly indeed. The water in the sump on the hanging is still draining slowly, and we hope soon to be able to resume sinking. The stopes each end of the new shaft are without any change to notice. The value in the aggregate is much the same as for the last fortnight.

DRAKEWALLS.—Thomas Gregory, November 18: The shaftmen are going on fairly in sinking the shaft (engine). A portion of the lode and branches being carried in sinking are producing some good stones of tin and wolfram, with mundic and mica.—North Lode: Lode in winze sinking below the 50, west of cross cut, is producing good class tinstuff, and is altogether very promising. In the 50 cross cut, north of the above-named lode, we have better ground, and a little water coming from the end. We have no other change to notice.

EAST BLUE HILLS.—S. Bennetts, W. K. Mitchell, November 18: The lode in the 20 east end is again improving, and is now worth 5*l.* per fm., although the surrounding killas continues soft. The lode in the west end at this level, west of the No. 1 cross-course is 2 ft. wide, and worth 5*l.* per fathom. In the 10 fathom level east end the lode is 2 ft. wide, and worth 7*l.* to 8*l.* per fathom. Two stopes in the 20 fathom level are worth respectively 8*l.* and 15*l.* per fm. A few days since it was thought advisable to cut in south at the bottom of the shaft to see how far in that direction the main part of the lode is, and it is found to be from 3 to 4 feet south of the shaft; the leading part of the lode has not yet been reached. The part seen contains a quantity of blende, mundic, and copper, and some tinstuff mixed with prian.

EAST CARADON.—William George, John Kellow, November 18: We are pleased to report that during the past month good progress has been made in driving the deep adit level west; the lode, which is 1 ft. wide, is composed of peach, with mundic, and spotted with copper ore—a very promising-looking lode. The ground has very much improved for driving, now set to nine men, stent the month, at 4*l.* 10s. per fathom; the takers to wheel, fill, and land all the stuff. We look upon this favourable change with great interest, for if it continues it will enable us to prove the long piece of untried ground to the west at a very small cost, having no water charges, and are gaining good backs as we go into the hill. From the above and the present character of the lode we consider the prospects are very encouraging.

GAWTON.—G. Rowe, November 16: The lode in the 117 east continues to show a promising appearance, being composed of strong capel, sulphur, and arsenical mundic, with good stones of yellow copper ore. The lode in the 105 east is looking well, and yielding 12 tons of arsenical mundic per fathom, mixed with a little ore. In the 95 east the lode is 9 feet wide, and will turn out 18 tons of arsenical mundic per fathom. All the stopes throughout the mine are without change during the past week.

GOODEVERE.—R. Knott, November 18: We are forcing on the deep adit east end as fast as possible with a full pare of men. The ground I am pleased to say is coming easier for progress, and I hope a few days more will cut out the hard bar of ground which we have been recently passing through.

GREAT HOLWAY.—W. T. Harris, November 19: Roskell's Shaft: The 95 Level North: The ground slightly improved for progress, and contains an increase of carbonate of lime, and water flows more abundantly.—Level Engine Shaft: The 80 Level East: The lode yields a mixture of lead and blende in small quantities, and promising for an improvement.—The 60 Level East: The rise in back opens out very promisingly, and in a short time shall recommend driving this level forward. Nice stones of lead are occasionally met with.—Tribute: No. 1 pitch in back of the 60 level west has improved, now worth 15 cwts. of lead and 1¼ ton blende per fathom. No. 2 pitch in back maintains its good prospects and yields, now producing on an average 1 to 3 tons lead and 1¼ ton blende per fathom. No. 3 pitch in bottom of level east is worth 5 cwts. lead and 1 ton blende per fathom. No. 4 pitch east is producing 10 cwts. lead and 1 ton blende per fathom. No. 5 pitch in back west is producing 1 ton lead and 1¼ ton blende per fathom. No. 6 pitch in back has slightly improved now yielding 1¼ ton lead and 15 cwts. blende per fathom. No. 7 pitch in back east is worth 8 cwts. lead and 15 cwts. blende per fathom. No. 8 pitch west is producing 5 cwts. lead and 1 ton blende per fathom. No. 9 pitch west is producing 15 cwts. lead and 1¼ ton blende per fathom. No. 10 pitch west is worth 10 cwts. lead and 1 ton blende per fathom.—Brammock's Shaft: The 60 level east No. 1 pitch is producing 15 cwts. lead and 1½ ton blende. No. 2 pitch in bottom is yielding 5 cwts. lead and 1 ton blende per fathom.—Surface: Dressing and other work progressing with usual regularity. Have delivered the 30 tons blende sold, and have to-day sold 24 tons lead ore, which fetched 9*l.* 15s. per ton.

GREEN HURTH.—James Polglase, November 13: The stope north of winze in back of bottom level is worth 12 tons per fathom. South of said winze is worth 12 tons per fathom: 44 end north is very promising being worth ½ ton per fathom. No. 1 stope in back of 44 is disordered, worth ½ ton per fathom. No. 2 stope in back of 44, worth 2½ tons per fathom: 30 end north, worth 1 ton per fathom. No. 1 stope in back of middle level the men are now rising to the adit level, worth 1½ ton per fathom. No. 2 stope worth 2¼ tons per fathom. No. 3 stope worth 2½ tons per fathom. Winze below 30 level worth 1 ton per fathom. Adit level north poor. We have cut water in the winze sinking below adit level east, which I fear will stop the sinking. Dressing going on well.

HARDSHINS.—Manager, November 13: There is no particular change with the forehead in the vein since last week. There is still good ore, but we do not appear to have got through the twitch yet, as the vein is not so free and good to work as it was further back. We have some nice ore in the stope close back to where the old man has left his stope end. If we had had courage to cut about another yard he would have discovered the ore above the level roof.

HEALEYFIELD.—John Trelease, November 13: The sinking of the Whitwell shaft is progressing satisfactorily. We are still in a hard compact sill, which is considered most favourable for the production of lead when the vein is reached. The sinking is a little slower than we expected, owing to the hardness of the sills, but this change we welcome; the more defined sills the greater chances of finding mineral in the veins. The strings we met with in the upper slate sill have loded out of the shaft, but we still find smaller ores, which produce their facings of galena and pyrites of iron, showing that the strata is most congenial for the production of lead when the main vein is reached. The shaft is very wet, and sinking is rather retarded owing to the water falling from the upper slate sill. The tribute bargain in the Smithy level is worth 10 cwts. per fathom. We have been working our No. 2 stope in the Grindstone sill the last few days, and the vein has improved, now worth 16 cwts. per fathom; but it is near the top part of the sill. We have sampled this week 26 tons of ore, 21 tons of No. 1, and 5 tons of No. 2. Our pumping engine and other machinery are working satisfactorily.

HOLYWELL DISTRICT.—R. Rowlands, November 19: The driving of new lode north has been reset to four men, at 4*l.* per yard. The joint shows indications of opening out, although the beds are keeping very flat; but as an increase of shale is setting in we expect a change in the ground, and to meet with an increase in the lead. No. 1 pitch, in roof of the same lode, and 5 yards from the forebreast, has materially improved, the yield being 25 cwts. of lead per fm.; reset to four men, at 5*l.* 5s. per ton. Driving east out of No. 2 cross cut is good for progress, and looking excellent for lead; we have met with some nice lumps; reset to four men, at 2*l.* 10s. per yard. In No. 3 cross cut the men are passing through tumblers of limestone as they advance to the hanging of the lode; reset to two men, at 3*l.* per yard. No. 1 tribute pitch, in the 80 east, is worth 12 to 15 cwts. per fathom; reset to six men, at 5*l.* 10s. per ton.

KILLIFRETH.—John Michell and Joseph Tamblyn, November 19: Setting Report: The 90 to drive west of cross course on the north part of tin lode by six men, lode worth 5*l.* per fathom improving as we get off from the cross course. Having holed the rise in back of 70 east to the 50 we are now stoping the ends of the same by six men and six boys, lode worth 6*l.* per fathom. The 70 end driving east by three men and three boys, lode 15 ins. wide unproductive, but letting out a quantity of water. Hawkes shaft to sink below the 70 by three men and six boys, lode 2 ft. wide producing a little tin, but nothing to value. The 70 end driving west by two men and two boys, lode large and very kindly and wet. Three stopes in the back of the 70, two east, and one west of Hawke's shaft, lode worth on an average 16*l.* per fathom. One stope in bottom of the 60 lode worth 15*l.* per fathom; one stope in back of the 60 worth 6*l.* per fathom. The 50 driving south on the cross course by three men and three boys; this end is extended nearly 70 fathoms, price for driving 2*l.* 7s. 6d. per fathom. The 30 driving south of Tregoning's shaft by three men and three boys to intersect the south part of tin lode which we expect to do within four weeks. The adit level driving south of Tregoning's shaft by two men and two boys. Within the last week we have met with two branches each producing a little tin, and from present appearance expect to cut the lode very shortly.

LEADHILLS.—Arthur Waters, November 19: Georges Roust Gripps' adit going north of Muir's cross cut at present shows a narrow lode, and without ore to value. The drift above said level is in a lode 2½ ft. wide, worth 10 cwts. per fathom.—Brown's Mine: The 115, south of Jeffreys' engine shaft, is in a lode 5 ft. wide, worth 2¼ tons per fathom. The winze below the 100, south of the said shaft, is worth 2 tons per fathom. No. 2 winze, just started south of the above, is worth 15 cwts. per fathom, and improving. The 100, going south of Wilson's shaft, is at present without ore to value. No. 1 stope above the 100, north of Wilson's, is worth 3 tons per fathom. No. 2 stope, 30 cwts. per fathom. No 1 stope south is worth 25 cwts. No. 2 ditto, 35 cwts. No. 3 ditto, 40 cwts.; and No. 4 ditto, 50 cwts. per fathom. The 85, north of Jeffreys', is in a lode 6 to 7 ft. wide—quartz and stones of ore. The winze below said level, south of shaft, is in a lode 9 ft. wide, worth 60 cwts. per fathom. The drift above, north of Wilson's, is worth 30 cwts. per fathom. The stope south of the said shaft, above the 70, is worth 6 tons per fathom. The stope north of shaft is worth 25 cwts. per fathom. The stope above the 61 south is worth 25 cwts. per fathom. The 10 south of No. 2 winze, south of Doble's junction, is worth about 20 cwts. per fathom. The stope north of No. 1 winze, in said level, is worth 35 cwts. per fathom. The stope south of the winze is worth 40 cwts. per fathom. The stope south of No. 2 winze is worth 35 cwts. per fathom. Gripps' adit going south of Wilson's, driven altogether 135 fms. 4 ft. 3 in., is in a lode 4 ft. wide, of a very promising character. The stope above this level is worth 20 cwts. per fathom.—Rake Vein: The pitch above Gripps' adit, south of Reid's shaft, by four men, at 90s. per ton, is producing 2 to 25 cwts. per fathom.

MELLANEAR COPPER.—John Gilbert, November 11: The lode in Gundry's engine-shaft, sinking below the 130, is 5 ft. wide, composed of spar, mundic, and blende, and some saving work for copper ore; this shaft is now down 7½ fms. below the level, and the men are making good progress in sinking. The lode in the 130, east of shaft, is 6 ft. wide, yielding 3 tons of copper ore per fathom, and the ground is much improved for driving. In the 130, west of shaft, the lode is 4 ft. wide, and worth for tin 7*l.* per fathom; we have cut into the north part of the lode, and find it to be yielding good stones of copper ore, and some saving work for tin. The lode in the 110, west of shaft, is 4 ft. wide, yielding 2 tons of copper ore per fathom, and letting out a large increase of water, which is draining the level above. The other places in the mine are much the same as when last reported.

MELLANEAR.—John Gilbert, November 18: The lode in Gundry's engine shaft sinking below the 130 fathom level is 4½ ft. wide, and yielding some saving work for mundic and copper ore. We shall endeavour to get this shaft down to the depth required for the next level by the end of the year. When we shall put the men at once to cut into the south part of the lode, which has been the most productive part for copper and tin in the level above. The part of the lode carrying in the 130, east of shaft, is 5 ft. wide, yielding 2½ tons of copper ore per fathom, and some rich stones of tin, and letting out a large stream of water. There is more of the lode standing in the south side of the level, which we think will also yield some saving work for copper ore. We have cut into the north part of the lode in the 130, west of shaft, about 3 ft., and so far it has yielded good stones of copper ore, and is also worth 5*l.* per fathom for tin, and presenting a well defined and promising appearance. In the 110, west of shaft, the lode is 4 ft. wide, and still yielding 2 tons of copper ore per fathom. The tribute pitches continue to look fairly well, and are producing their usual quantities of copper ore. Since the late heavy rains the water underground has increased a little, but we have still a plenty of surplus pumping power, as Gundry's engine is now going only about 5½ strokes per minute. Our sampling for this month is computed to be 319 tons of copper ore.

MID-DEVON COPPER.—James Neill, November 14: A Shaft: The 93 cross cut south extended by nine men with boring machinery 1 fathom 1 ft., making total distance from shaft 7 fathoms 3 ft. 9 in. The rock is rather changeable, some veins being composed of capel and hornstone and others of garnet, hornblende, chlorite, and capel, one of the latter in early part of the week was intermixed with a little yellow ore and arsenical mundic, showing the strata to be mineralised; the bottom part of the drivage is porous and water continues to flow in large quantities.—C Shaft: The stope in back of cross cut north from 50 east worked by three men, still yields 3¼ tons of ore per cubic fathom; strata is unchanged.

NEW CARADON.—N. Richards, November 18: No. 1 lode east at the 60 fathom level is not more than 1 ft. wide, but there is not much change in its composition. This lode west at this level is 2½ ft. wide, producing a little yellow copper ore.

NEW LANGFORD.—E. Dunstan, November 18: In the middle level driving east of the engine shaft above the 30, the lode is 1 ft. 6 in. wide, 6 in. of which contain some good work for silver lead. Here we are opening out a large section on ground, portions of which, no doubt, will pay to take away. In the eastern or newly-acquired sett the strata, in my opinion, is very congenial for the production of mineral, and should the tributers make any discovery of importance it will be very advisable to clear one of the shafts in this part of the mine, so as to be able to give it a thorough inspection. This can be done very cheaply, as one of the shafts is already clear to the 10 below the adit.

NEW KITTY.—W. Vivian, November 19: The 40 fathom level driving east of Thomas's shaft, we have a very promising lode at this point over 3 ft. wide. The 20 fathom level driving east of Thomas's shaft the lode continues to improve for copper ore, and is worth over 7*l.* per fathom. The prospects of the mine at present are very encouraging.

NEW TERRAS.—Richard Eade, November 19: The masons are proceeding as rapidly as possible with the erection of the boiler-house. Our other surface work is also being pushed forward. Our tender for the sinking of the engine-shaft and the erection of the stamps will be out on Monday next.

NEW WEST CARADON.—N. Richards, November 18: The new lode in the winze sinking below the 38, east of cross course will yield close upon 1½ ton of copper ore per fathom. This lode in the rise, west of ditto, is yielding saving work for copper.

NORTH GREEN HURTH.—James Polglase, November 13: The vein south has improved in appearance during the week. The vein in east end keeps its width, and kindly surroundings, but without ore.

PENEGAERREG SILVER-LEAD.—Joseph Evans, November 18: Fair progress is being made in stoping, and we have a large quantity of lead ore broken and ready to be brought out early next week. I am pleased to say that we have made a tram-road to convey our ore stuff right to the lower floors from all parts of the mine. The stopes at the 10 above adit hold out well. The dressing is going on vigorously, and the dresser reports that he is well pleased with the stuff he is dressing. He hopes to have a parcel of ore ready for market very shortly.

PLUSHEYS.—Thomas Trelease, November 19: We have driven our north end 7 fms. from the cross cut, and have commenced to drive east to cut through the lode. We have driven about 11 ft. through a very disordered piece of ground; but as we have a large stream of water coming out of the forebreast, I think the main part of the lode is still before us. The main cross cut is now pretty well drained, and I purpose putting the men back to drive on the course of the lode, where we hope at once to be breaking ore in paying quantities. Our south end is also in about 7 fms., and we purpose putting these men to prove the lode in this direction next week. The Nos. 1 and 2 are together in this end, and appear to be going on together so far, but I think they will cross each other as they go south. We have a man laying down some flooring for dressing purposes, and to-day they are crushing the rough of the work we broke in cross cutting the lode, which will be cleaned in a day or two.

POLCREBO.—W. W. Martin, John Richards, November 19: Highburrow shaft is completed to the 70 fathom level. the drawing lift is fixed with iron rods and stays, and is working satisfactorily, the shaft is divided and cased, and the ladders are fixed. On Monday last we started the driving east at the 70 fathom for plat, preparatory to opening on the south part of the lode, and extending on its course. The lode in the 60 east is showing better indications, and is letting out more water. The lode in the 50 east has been split by a horse of granite, but the two parts are now fast coming together, and a large tin capel lode is coming in the end, and it produces tin.

PRINCE OF WALES.—S. Roberts, November 18: Watson's engine-shaft is now sunk on the new lode 3 fms. below the 115; lode 1 ft. wide with a little tin, but of no value. In the 115 east on this lode the lode is 3 ft. wide, but disordered by patches of killas formed in it. The lode in the 115 west is much the same as last reported. In the 115 east on the main lode the ground is still hard, we are driving by the side of the lode which is composed of tinny capel of low quality. We think we shall get through this channel of ground in a short distance, and find the lode productive. In the 102 east the lode is 3 ft. wide, composed of quartz, peach, and prian, and a little copper ore, letting out large streams of water, and worth 7*l.* per fathom for tin, a very promising lode indeed. We are getting on well with cutting of the angle-bob plat.

PRINCE ROYAL.—S. Bennetts, November 18: There is not much alteration to notice in the north cross cut, No. 1 adit, beyond the ground being slightly harder. In the No. 2 adit the lode in the winze just commenced is looking very promising, is the full width of the winze, and contains tinstuff throughout, some veins being rich, and as depth is reached I have no doubt much better results will be obtained.

SOUTH CONDURROW.—William Rich, W. Williams, H. King, November 18: The 54 and the 66 fathom levels, west of Marshall's, are without alteration to notice. The cross cut south at the 93 is in hard granite, and no indication of a lode being near. We have, therefore, suspended the cross cut and resumed the drivage of this level west on the course of the lode. The 80 end, west of Plantation shaft, is worth 7*l.* per fathom. The 80 end, east of King's, is worth 8*l.* per fathom; two stopes in the back of this level are worth 18*l.* per fathom. The 70 end east is worth 7*l.* per fathom; the stope in the back is worth 10*l.* per fathom. The 60 end east is worth 8*l.* per fathom; two stopes in the back of the 60 are worth 10*l.* per fathom each. The 50 end east is worth 9*l.* per fathom; three stopes in the back of this level are worth 28*l.* per fathom in the aggregate. The 40 end east yields a little tin; the stope in the back of this level is worth 10*l.* per fathom.

SOUTH FRANCES.—Charles Craze, John Opie, Richard Williams, November 17: There is no change in the lode in Pascoe's shaft since our last report, it being still worth 28*l.* per fathom for the length, 12 ft. The 246 end west is not looking so well for tin, now worth 15*l.* per fathom, but as we drove through a good lode in the level above to the west of this point we are expecting an early improvement in this level. One stope in the back here is worth 20*l.* per fathom. The 236 west is worth 14*l.* per fathom; in the No. 1 stope in the back of this level we have lately been taking away a piece of rather poor ground in order to get to a better part westward, and we are pleased to say that we are now got in to the dip of the shoot of tin where the lode is again worth 30*l.* per fathom. No. 2 stope in the back of this level is worth 18*l.* per fathom. No. 3 stope is worth 17*l.* per fathom. There is no change in the 236 east, but we expect an improvement here soon as the end is now only 6 fms. short of the winze sinking below the 226 east, where there is a good lode worth 50*l.* per fathom for 9 ft long. A stope in back of the 236 east is worth 12*l.* per fathom, and a stope in the bottom is worth 10*l.* per fathom. The other stopes throughout the mine are without change. Daubuz's shaft was sunk in the last month 2 fms. 6 in., and we have about 8 fms. more to reach West Frances south lode.

STANDARD.—W. H. Borlase, November 18: The lode in the 45, south of new shaft, is already improving, now worth 25 cwts. of lead of per fathom. The lode in the winze sinking below the 33 is producing fully 2 tons per fathom, and is looking well. The lode in the 23, south of junction, is producing about 20 cwts. of lead and blende per fathom. There is no change to notice in the 33, on the east and west lode. We are now having some severe frost, which is improving the work of the dressing-floors. We are busy carting the new crusher from the station, and building for its reception will be erected as soon as possible.

ROMAN GRAVELS.—Arthur Waters and Son, November 19: The 125, going north of Flat-rod shaft, shows a strong lode, yielding stones of ore. The 125, south of new engine shaft, is going forward in the centre of a wide lode, the part carried being worth about 2 tons per fathom. The 110, south of the above shaft, the pioneer level of the mine, is opening out a lode 5 ft. wide, filled with white spar and lead ore, worth 6 tons per fathom. This is the best run of ore seen in this level since we started from said shaft. The 95 south shows a wider lode than for some time past, and we are expecting an improvement for lead shortly. The 80 going south looks promising for improvement. Stopes generally are quite up to late valuations. The 100 tons of lead ore sold to-day realised 792*l.* 10s.

RUSSELL UNITED.—John Bray, November 19: The lode in the 57 fm., west at Stephen's shaft is 5 ft. wide, composed of large quantity of flookan and quartz. Yesterday we intersected a branch on the north side of the level 6 in. wide, good for black copper ore. I look on this as a very promising end. The lode is rise above back of this level is 3 ft. wide, worth 6*l.* per fathom. There is no improvement in the lode in the deep adit level east since last report. The lode in stope above the back of this level is 4 ft. wide, which will pay for working. We are busy dressing the copper ore, and hope to get about 70 tons for sampling by to-morrow week.

SHEPHERDS UNITED.—T. Doidge, November 17: East Wheal Rose Section; Baynard's: In examining the cross-cut in the 150, some 11 fathoms north of this shaft, I found it driven on a cross course, so that at the point where the cross course intersected the east lode the latter is disordered by it. It was here that we found the south end breasted up, and after cutting out this breasting we started to drive the end south on the east lode. I expected that we should have to drive several fathoms before we got out of the influence of this cross course, but I am pleased to say that on examining the end to-day I find the lode is rapidly changing and becoming more settled, and is a good leady lode in the present end. Judging from the appearance of the end and the favourable change that has taken place in the few feet we have driven I fully expect that before we have driven many fathoms south we shall meet with a good course of lead. There are two other ends in the 150, north of Baynard's, one going north on the east part of Middleton's lode, the other also going north on the east lode; both these are closely boarded up, and therefore I could not get to value them, but judging from the nature of the stuff washed out with the water I believe there to be good lode in each end. We cannot safely examine and drive these ends until we drain the water 20 fathoms deeper in the north mine.—North Wheal Rose: Here every effort is being made to prepare the necessary pitwork as angle-bob, main rods, &c., and two full pares of shaftmen are engaged in the shaft fixing the necessary pitwork, so as to drain another 20 fathoms as quickly as possible, and that we may drive the two north ends before referred to in the south mine, after which we shall push on to the bottom of North Wheal Rose, in order to open up the courses of lead existing and being worked at the close of operations. The machinery is in good working order, and the tribute pitches are somewhat improved.

— J. Prisk, W. Edwards, November 16: Tresavean Section: The shaftmen have nearly completed cutting ground for drop bearers at the 166, and the cistern for the 16 in. plunger will be sent down to this work, when we shall proceed fixing the work. The mine is drained to the 169, and the bearers referred to above are for the lift we intend sending below.—Cunnack's Shaft: The lode in the 24 east is looking exceedingly well, and worth 12*l.* per fathom. We are pleased to say we are now getting more water from the breast, and the lode on the whole is getting precisely of the same character as the lode in the winze; as soon as the end is squared we intend rising, and every effort will be made to effect a communication as early as possible, so as to increase the returns. The damage done to the stack of the 90 in. engine house by lightning is being repaired, and we are pleased to report that it has not in any way interfered with the underground working. The 90 in. engine and all other machinery is in good condition and working well.

— W. Argall, T. Job, November 14: Mounts Bay Section: The 20 fm. level driving east of Pengersick shaft is worth about 4*l.* per fathom. We are pleased to say we holed the winze from adit to the rise in the back of the 20 fm. level. This will give us over 20 fm. stope of tin ground. We have a tribute pitch from the back of the 20 to go up 10 fms. working, by four men, at 10s. in 14. At the 10 fm. level we have six men driving their own level, and stoping same at 13s. 6d. in 1*l.* The other pitches throughout the mine are just as last reported We have commenced to burn tin for our next sample.

SOUTH DARREN.—John Mitchell, November 19: The water is nearly all out of the mine; we expect the bottom will be in fork to-night. There is no particular change in any of the places underground since last week. Saturday next is setting day, and a full report will be sent you next week. We have very hard frost here, but are still able to keep on dressing.

WEARDALE.—James Blenkiron, November 19: I am very glad to inform you that a decided improvement has taken place in Watson's drift sole, where we have four partnerships employed on tribute in 5 yards limestone and slatey hazle, worth 16 cwts., 20 cwts., and 6 tons; the new length worth from 30 to 40 cwts. per fathom. The ground will only be worked for 3 or 4 fathoms in depth from Watson's drift and sills above; this will lay the scar limestone and slatey hazle open for stoping, which are intact. The sills above Watson's drift have been worked, and some good courses of ore for several hundreds of fathoms from 6 fathoms hazle to top of the great limestone. This is a most important discovery, and augurs well for scar limestone, for which Lowe's drift is being driven, and in which we shall soon open. I trust some rich workings. I hope by the end of the year to report good discoveries in Greenlaws, Killhope shaft, or new sinking, and Red vein, Rookhope. Altogether we were never looking so promising.

WEST CARADON.—N. Richards, November 18: No. 5 lode at the 38 east is improved, and is being forced on by a full pare of men. It is 2½ ft. wide and will yield fully 1 ton of grey copper ore per fathom, and we hope it will soon further improve.

WEST GODOLPHIN.—T. Hodge, Frances Hodge, November 16: We beg to submit you the following report:—Bellingham's Lode: In the 22 west the part of the lode carried—5 ft.—is disseminated thickly with fine veins of prian and quartz. A good stream of water is issuing from the forebreast. It is clear to us since sinking the winze down to 5 fms. that the tin ground is dipping west, and, in order to overtake its run at the 92, we shall have to drive west some fathoms further than was anticipated at first, and in this we are making fair progress in driving. The lode in the 70 east is kindly, and we think we are nearing a change.—Caunter Lode: In the 92 we have driven on the course of the cross course from eastern to the western division of this lode; we did not meet any intermediate branches that would pay. The lode in the 92 south-east is yielding occasional stones of tin. The stope below the 80, south-east of winze, is worth 7*l.* per fathom.—Pink Lode: In the 92 west on this lode, calculating the run of the branch of tin coming down in the stopes, we have to drive 15 fms. to overtake it; of this from the winze about 3 fms. is spent, leaving about 7 fms. to drive. The stope below the 80 west is worth 25*l.* per fathom; the stope above the 80 west, 6*l.* per fathom; the stope above the 60 east, 7*l.* per fathom; the stope below the 50 west, 7*l.* per fathom; and the stope above the 40 west, 7*l.* per fathom. The lode in the 20, west end in killas, is worth 4*l.* per fathom. We have reached the killas in the stope in back of the 40, and we do not anticipate the lode here will be so productive in following it up at this point. Our machinery is working well and in good order. Surface works, dressing, &c., are being carried on with fair prospects of a good sale on Thursday next.

P.S.—West Godolphin sale of tin for four weeks on Thursday last realised 461*l.*

WHEAL CREBOR.—Henry Phillips, P. D. Holman, November 17th: The lode in the 156 driving west of new shaft is 5 feet wide, yielding 2 tons of arsenical mundic and 1 ton of copper ore per fathom. Our stoping ground will yield in the aggregate 60 tons of copper ore and 21 tons of mundic per fathom. All other points are without change.

WHEAL GRENVILLE.—T. Hodge, November 16: After a careful survey of our working, I beg to hand you the following as my report:—In the 205, east of Goold's shaft, we are going forward in a wide lode, worth about 7*l.* per fm. The 190 west end produces stamping work. The 170 east end is worth 8*l.* per fathom. Bartle's stope, in the back of said level, is worth 18*l.* per fathom. The 165 east end improves as we advance, producing fair stamping work. The winze below said level is worth 15*l.* per fathom. Warne's stope, in the back, is worth 12*l.* per fathom. Trevaskis stope is worth 15*l.* per fathom. The 150 east end is worth 8*l.* per fathom. Hoskins' stope, in the back of said level, is worth 65*l.* per fathom. Hart's stope is worth 12*l.* per fathom. Will's stope is worth 15*l.* per fathom. The 165, west of Peases' shaft, is poor. The 150 west end is worth 8*l.* per fathom. The 140 west end is worth 20*l.* per fathom. The 120 west end is worth 10*l.* per fathom. The winze below the 130 is worth 10*l.* per fathom. The winze below the 120 is worth 12*l.* per fathom. No other changes. At Peases' shaft we have repaired the shaft from surface to bottom, and are now engaged fixing skip-road. We are only working one pare of men in 24 hours, so that we shall not interfere with our returns. All surface work is going on regular and satisfactorily. We shall sell our usual quantity of tin on Thursday.—P.S. Tin sold for the fortnight 25 tons 14 cwts. 1 qr. 20 lbs., realising 1356*l.* 11s. 6d.

WHEAL METAL AND FLOW.—Wm. Argall, S. P. Curtis, November 18: Watson's shaft sinking on the Metal lode still produces a great deal of mundic, white prian, peach, and a little tin; we have no north or south wall of the lode in the shaft, and after sinking deeper we intend cutting through it. We are making fair progress in laying down our dressing appliances to treat the Flow tin, and as these are being completed our returns will increase.

YEOLAND CONSOLS.—J. Beare, November 19: The end has been driven this week about 3 fms., and the stuff is not so wet and slimy; the water is coming out in the bottom of the level on the side of the hanging wall, and leaves the stuff dry for tramming. We have been obliged to timber the hanging and foot walls for about 3 fms., which appears to be sufficient. We have not gone further into the old mine this week, as we have three men putting in timber and preparing the ground for the stopes to work. The tramming to supply the stamps has been set at 33*l.* for the month; the stopes at 5s. and 6s. per fathom, and at this price the men are earning good wages. The general working expenses at the mine have also been considerably reduced. The assays for the week show the tin to be a little richer in quality. We are keeping the stamps in full work day and night, and pushing on for the next sale.

FOREIGN MINES.

ALAMILLOS.—November 4: The lode in the 20, driving west of San Martin's shaft, is disarranged, and at present unproductive. The 20, driving west of Santa Agneda's shaft, is suspended, and the men are now sinking Simons' winze In the 130, driving east of Taylor's engine-shaft, we have intersected the north lode; it is small, but of a promising appearance, and contains stones of ore. The lode in the 130, driving west of Taylor's engine-shaft, is small and poor. In the 80, driving east of San Victor's shaft, the lode is getting smaller, and is not yielding enough ore to value. The lode in the 95, driving in the same direction, is very good, and has improved in value to 1⅛ ton per fathom. In the 95, driving west of San Victor's shaft, the lode is open and strong, producing good stones of ore, valued at ½ ton in a fathom. The men are making very good progress in sinking San Felipe's shaft below the 60; the lode produces 1 ton per fathom. In Parra's winze, sinking below the 10, the lode is small, but regular, and is opening up paying ground, yielding 1 ton in a fm. The lode in Gabriel's winze, sinking below the 80, is large and strong, with stones of ore. Simons' winze is situated west of Santa Agneda's shaft, and is sinking below the 20 in a lode worth 1 ton per fathom. The weekly weighings of ore were kept up very regularly in the past month, and the stopes are turning out fairly well at present. The various works at surface are going on steadily, and the machinery is in good condition. We estimate the raisings for November at 200 tons. The tributers returned 162¾ tons of ore in the past month.

BARANCANNES.—Joseph Garland, November 7: The 34 fathom level north was extended last month 11·60 metres. In the early part of the month the lode, 5 ft. in width of which is being carried, was valued at ¾ ton per fathom; it then became poor, but we have now again a small branch of ore appearing in the end. We expect to communicate this level with the winze, a little ahead, this month. The 34 south was driven 5·25 metres, for the greater part in a barren lode, but in the last 2 metres we have met with a branch first yielding occasional stones of yellow copper ore, but now developed into a regular well-defined vein of ore, mostly grey (fahierz), 6 in. wide. This is encouraging after driving some 15 metres in unproductive ground. The rise in the back of the 31 was put up 1·80 metre, and holed to the 24; this has made available the section of ore ground extending nearly from level to level. For convenience of stoping a mid-level has been started north and south from this rise (Hall's rise), half way between the 34 and the 24 levels. The south mid-level was driven 3·25 metres in a lode 12 in. wide, yielding good saving work. The north mid-level was driven 3·80 metres in a lode valued at 1 ton per fm., which is somewhat below its present value. No. 1 winze in the 24, at Old Whim shaft, was sunk 1·90 metres by the side of the lode, and then suspended on account of the water. The 34 north level is now near the winze, as has been mentioned, and will soon be under it. No. 7 stope has been started near the present bottom of the winze, and the 11 metres of length opened discovers a strong, fine-looking quartz lode, averaging 5½ ft. wide, and estimated to yield 1½ ton of ore per fathom throughout. The lode in No. 6 stope, in bottom of 24, south of No. 1 winze, averages about 2½ ft. wide and ½ ton of copper ore per fathom. The lode in No. 5 stope in back of 24 south yields 10 cwts. of ore per fathom. The lode in No. 4 stope in back of 24 south, and near the 13, is 6 in. wide, and yields saving work for dressing. The estimated raisings for October were 10 tons of 20 per cent. copper ore. We are now carting to the railway about 35 tons of ore for shipment to Swansea. The health of the workmen has much improved, and the English staff, who have enjoyed good health during the season, return to the mine to reside to-day.

BUENA VENTURA.—November 5th: The lode in the 30 driving east of Contrabando shaft is small and at present not containing ore enough to value. In the 30 driving west of Contrabando shaft the lode is small and unproductive, and driving has been suspended. In Contrabando shaft sinking below the 30 the water has increased very much in the past month, rendering the work extremely difficult. The lode produces ½ ton per fathom. The men are making good progress in sinking the Emma engine shaft below the 10, notwithstanding the quantity of water. The lode is very changeable and on the whole is opening up ground that will pay on tribute, yielding 1½ ton in a fathom. The lode in No. 14 winze sinking below the 20 continues small and unproductive. The works at surface are going on regularly, and the machinery is in very good condition. The tributers have had a rather poor month. The returns for October amounted to 20 tons.

CHONTALES.—Manager, November 16: During the month of September the main upper level at San Antonio was driven 10 varas. There has been no change in the lode since I wrote last. The stope in the back of the level progressed 11 varas, the lode still continues to produce payable quartz. The western rise has been communicated with the level going west of the ventilation rise. The lode in the rise is about 3 ft. wide contains gold, but is hard for progress. In the eastern workings the No. 2 level has been driven 9 varas, the lode is about 6 ft. wide, and produces some very good quartz. The No. 1 level was driven 15 varas, the lode is about 4 ft. wide, and is also very good for quartz. In the stope, west of the rise, we stoped 70 varas, the lode in stope is small, consequently we have to take away a large piece or ground to get out a little quartz. We have also driven a level west from the top of the rise 18 varas to prove the lode, as in the rise now going up from the No. 2 level the lode is hard and small, and is now stopped. The ground between the rise and shaft is now all taken away. The mill crushed in the past month 700 tons of quartz which produced 105 ozs. of gold, or yielding on an average 3 dwts. per ton. The gold is valued at 778l. 4s.; the cost for September is 330l. 8s.; leaving a loss of 102l. 4s. The result of August working is now reported as follows:—The gold is valued at 945l.; the cost for August was 238l. 4s.; leaving a profit of 4l. 16s.

DEVALA-MOYAR GOLD.—J. Williams, October 26: In sinking Harewood shaft we have come across some old workings quite unexpectedly. They appear, so far as I can judge, to be 20 ft. long, 16 ft. deep, and about 1 ft. wide. It is impossible at present to give you the exact dimensions of these workings until they have been cleared of the debris. They go down on the line of the shaft, therefore they will assist us very materially in getting on with the sinking. The quartz taken out as samples gives a fairly good show on the washboard. At Salomon's the tunnels are being worked with all energy, but without much alteration, so far as appearances go, since I wrote you last week; each of the contracts contain gold, which is very encouraging. The winze sinking in the bottom of the 300 has struck into some workings made by Captain Cooper midway between these two levels; it will now be continued until it reaches the 400, and after communication is effected it will serve the double purpose of ventilation and stoping.—Tramway: The road is now laid down 6100 ft., and has reached the place where we intend to put the first shoot pass. After we have stoped the ground sufficiently we shall commence the road below. We have now to encounter the most difficult part of the ground, where consecutive drops will have to be made until it reaches the mill.

FORTUNA.—November 4: Canada Incosa Mine: In the 90, driving west of San Pedro's shaft, the lode is wide and strong, composed of hard quartz and good spots of ore, valued at ½ ton per fathom. The lode in the 120, driving east of O'Shea's engine shaft, and the 110, driving west of Lownde's shaft, are very small and poor, and the ground exceedingly hard. In the 110, driving east of Lownde's shaft, the lode is soft and wide, yielding good lumps of ore, worth 1 ton per fathom. It is being rapidly opened up. John's winze is sinking below the 80 in a good lode, yielding ¼ ton in a fathom, and at a moderate rate. Very good progress is being made in sinking Bruno's winze below the 100. The lode is regular and well defined, producing ⅓ ton per fm.—Los Salidos: In the 175, driving east of Taylor's engine shaft, the lode looks much more promising, is open, and lets out water freely. Very valuable ground is being laid open in the 160, driving in the same direction, yielding 3 tons in a fathom. The lode in the 145, driving east of Taylor's engine shaft is compact and regular, producing 1½ tons per fm. The ground is hard. In the 92, driving west of Paigrave's shaft, the lode is split into branches, and does not contain ore enough to value. The lode in the 92, driving east of Paigrave's shaft, has declined in value to 1 ton per fm. The ground is favourable. In Parra's winze, sinking below the 130, the lode has fallen off in value, and the ground is very hard. Esteban's winze, sinking below the 130, is laying open valuable stoping ground worth 3 tons in a fathom.—San Anton Mine: The lode in the 40, driving east of El Tesoro engine shaft is very wide, with good stones of ore, yielding ⅓ per fm. In advance of the 40, driving west of El Tesoro's engine shaft, in the 30, there is a good shoot of ore, so that we expect an improvement shortly. There is no improvement in the 30, driving in the same direction. Gomez's winze is holed to the 40. Manrique's winze is being sunk below the 30 at a great rate and little cost.

INDIAN CONSOLIDATED GOLD.—H. Lynn, Oct. 19: I reported last week my anticipations of the yield by the end of the year. The battery is now again in full work, and I trust I shall be able to get sufficient stone to keep it going continuously. The instructions of the board relative to the harvesting and despatch of cinchona bark during the coming season have been carefully considered, and shall be closely followed. I start for Colar to-morrow, going to Madras *en route* to hand to Messrs. Gordon, Woodroffe, and Co for shipment to you the 520 ozs. 11 dwts. of gold of which I gave you particulars last week. I hope to give you satisfactory reports of progress being made; meanwhile I may mention that Captain Sheridan wrote on the 15th inst.:—"The rock-drills started in main shaft; they are making a better shape with them to-day. I have got two drills down."

— October 27: Colar Section: In the first place I proceeded to Madras, and handed to Messrs. Gordon, Woodroffe, and Co. the case containing 320 ozs. 11 dwts, of gold, valued at Rs. 14,400, which will be forwarded to London per steamship Clan Macgregor on or about 26th inst. (yesterday). The air compressor and machinery in connection therewith have been thoroughly well fixed, and the apparatus works extremely well. The pumping engine at No. 3 shaft continues to do its work admirably, working about eight or nine strokes per minute. I had written thus far when I received the reports from Colar, which I now enclose. I went over all the workings mentioned by Captain Sheridan, and there is strong reason to suppose we shall cut the lode in No. 3 shaft after about 15 or 20 ft. of sinking, and that the extensive workings at the old No. 4 shaft (now come together) will be met in the south drive at 75 ft. in the new No. 4 shaft.

— Captain Sheridan, October 24: Colar Section, Main Shaft: At the time I sent away my last report there was about 6 ft. of water in our main shaft, so we completed our bullock whim, and had the shaft quite dry and ready to start boring by rock-drills on Thursday, the 15th. Since that date we have sunk 5 ft., making a total of 57 ft. from surface. We have got all our arrangements complete on surface, and ought to make fair progress in sinking. I like the country we are sinking through very much; it is full of small quartz leaders running east and west, which I look upon as a very favourable sign, as they act as feeders to the main lode.—No. 3 Shaft: We ought to cut the quartz that is passed through in the cross-cut at about 20 ft. deeper, or at 150 ft. from the surface. As soon as I cut that in the shaft I will drive north and south on it in the cross-cut at 85 ft. from the surface; there is no doubt it is the same run of stone the natives worked upon. North and south of this shaft there are surface indications of extensive native workings. I will try and get into them as quick as possible. This shaft has been sunk 2 ft., making a total of 125 ft. from surface.—No. 4 Shaft: The drive south at this shaft has been extended 5 ft., making a total of 41 ft. from shaft; there is better quartz. We have about 80 ft. to drive to get to the point where the former company found the large native workings. As soon as I can get into this I will follow them down as quick as possible.—Machinery: All the machinery is working well. I see no reason why, if we persevere, that we should not be as successful as our neighbour.

— G. J. Bawden, October 26: No. 3 Shaft: The engine and pitwork at this shaft continues to work satisfactory.—Air Compressor: The air compressor works very satisfactorily, supplying our boring machines with a sufficient supply of air.—Boring Machines: We started the boring machines in the main shaft on October 15, and up to last Friday had sunk 5 ft. The Darlington machines do their work very satisfactorily, and I have no reason to doubt but that they will continue to do so. The electricity works very well.

JAVALL.—G. E. Chambers, October 5: Extract from manager's letter: Mine: In Pim's tunnel 2½ varas were driven to approach the stoping ground mentioned in former reports; my idea is to get at the foot of the shoot from San Pedro, but owing to the hardness and great width of the lode I have not yet been successful; to facilitate this I am driving a cross-cut to north from San Pablo's shaft, and as the ground is softer, I hope sooner to discover the descent of the already-mentioned shoot. I have recommenced work in the south level of Pim's tunnel, which I had abandoned when better quartz was procurable at other parts. A shaft is being made, which progressed 10 varas last month; in a week or so I hope it to be high enough to be able to cross-cut into fairly sound ground in the old workings on the north lode close to Tompisqui shaft, and by prospects taken expect to procure better quality quartz than we are now crushing. The supply of quartz came from the following places:—Seemann's stope yielded 458 tons; San Pedro No. 1, 34 tons; San Pedro No. 2, 25 tons; Laken, 84 tons; east sinking, 178 tons; west sinking, 255 tons; Nispero No. 1, 193 tons; Dolores, 217 tons; Edwards', 46 tons; Esperanza, 102 tons; San Pedrito (manto), 121 tons; Concepcion (manto), 95 tons.—Mills: La Fé: 30 stamps worked 18 days, crushing 1279 tons, which yielded 246¾ ozs. of gold, showing an average of 3 dwts. 20 grs. During the month I had two batteries stopped for some days, the one to put new cam-shaft, cams and guides, and the other to take up the mortar-box, the foundation bolts of which had loosened. The turbine, with the exception of the usual monthly stoppage for overhauling and putting in new brasses, still continues to work satisfactorily.—Esperanza: The 12 stamps worked 24 days, crushing 537 tons, which yielded 96¼ ozs. of gold, showing an average of 3 dwts. 6½ grs. I shall this month have to stop for a day or two to put on another bevel wheel and pinion, the old ones being entirely worn out.—Caridad: The two cups worked 22 days, and yielded 29 ozs. of gold.—Receipts and Expenditure: The expenditure was 984l.; the remittance is valued at 930l.

LINARES.—November 4: Pozo Ancho Mine: In the 135, driving east of Warne's cross cut, the lode is very wide, with spots of ore, but not of value. The lode in the 30, driving west of Warne's shaft has improved to 1 ton per fathom, and is opening up paying ground. In the 115, driving in the same direction, the lode continuing unproductive driving is suspended. The men are making good progress in the 155, driving south of Peill's engine shaft. The lode in the 155, driving west of Peill's engine shaft is disarranged, and at present small and poor. In the 155, driving east of Peill's engine shaft, the lode is large and strong, consisting of calcareous spar and lead ore, worth 1 ton per fathom. The lode in the 135, driving east of Peill's engine shaft, produces very good stones of ore, valued at ½ ton per fathom. In the 120, driving in the same direction, the lode is quite unproductive. No. 257 winze, sinking below the 115, is situated west of Warne's shaft, and over the 130. The lode is worth 1 ton in a fathom. The returns of ore were kept up very steadily in the past month, during which the stopes did not undergo any important change. The works at surface are going on regularly, and the machinery is in good condition. We estimate the raisings for November at 200 tons.—Quinientos Mine: The lode in the 115, driving west of Taylor's engine shaft, continues rather small. In the 115, driving east of Taylor's engine shaft, the lode is passing through a hard bar of sterile ground similar to that in the level over it. Its present value is ½ ton per fathom. The lode in the 100, driving in the same direction, is open and promising, producing ½ ton in a fathom. In the 90, driving east of Taylor's engine shaft, the lode is improved in value to 1½ ton per fathom, and is opening up valuable ore ground. We estimate the raisings for November at 150 tons.

MYSORE GOLD.—B. D. Plummer, October 27: Mining Operations: We are going on as usual with the work; in some of the places good speed has been made, while in others the rock is so exceedingly tight for cutting that the speed is very slow, especially in the bottom north end, and the 236 cross-cut from west to east lode. It, however, affords me very great pleasure to be able to show such good assays from so many of the places under operation. The continuation of No. 1 winze in bottom of the 236, north of Taylor's shaft, has considerably improved. The lode is now 3 ft. 6 in. wide, assaying 6 ozs. 2 dwts. 12 grs. per ton of rock. The 296 north end has slightly improved in value, though the lode is not quite so wide as it was. It is, however, worth 12 tons of quartz per fathom, assaying 4 ozs. 0 dwts. 1 gr. per ton. The 296 south end is worth 8 tons per fm., assaying 3 ozs. 5 dwts. 8 grs. per ton. The assay value of the stope and sink in bottom of the 236, north of Taylor's shaft, has also improved, it is now worth 13 tons of ore per fathom, assaying 6 ozs. 10 dwts. 16 grs. per ton. The stope in the back of the 236, south of Taylor's shaft, is worth 9 tons per fathom, assaying 5 ozs. 19 dwts. 5 grs. per ton, and the drift in the bottom of the level will produce 15 tons per fathom, worth 3 ozs. 6 dwts. 23 grs. per ton. The 173, north of Taylor's shaft, on east lode; there was little work done last week. There is a slight improvement in the value of the ore; it will produce 8 tons per fathom, worth 1 oz. 12 dwts. 16 grs. per ton. In Plummer's shaft very satisfactory speed is made; it is now 144 ft. deep. The other works in the mine go on regularly. Within the last four or five weeks large quantities of timber have been used in repairs to Taylor's downright shaft and the air shaft. The stamping goes on satisfactorily.

NEW HOOVER HILL GOLD.—Report for October: The Briol's shaft is down 61 ft. 8 in. below the 230, an advance of 6 ft. 8 in. We have started to drive north at 290 ft., and have set the drift on contract at $17 per foot. As soon as the drift is sufficiently advanced, we will resume sinking the shaft. The winze below the 230 north is down 43 ft., an advance of 8½ ft.; the vein which has been broken up into a number of stringers for the last 20 ft., shows signs of coming together again. The ore broken in the stope below the 170 north during the month has been of somewhat lower grade than usual.—Hawkins: The winze in the No. 1 ore body is down 47½ ft., an advance of 11 ft. A dyke of greenstone is coming in in the bottom, through which we are now sinking. This greenstone is probably not more than 5 ft. thick at this point, and judging by former experience, we will on sinking through it, find the ore continuing on the other side. A prospecting rise which has been advanced 28 ft. during the month has been put up in the back of the No. 1 stope, without encountering anything of importance. In the No. 2 stope the greater part of the month has been taken up in securing the back by means of a heavy cribbing, so as to enable us to take away a block of good ground which has been left standing. This timbering is now completed, and we have started stoping here again. The water began to get troublesome in the bottom of the incline going down on the No. 2 ore body, so we are making arrangements to put in a small steam-pump, and as soon as this has been done will resume sinking in the bottom. We have started to drive north from the bottom of the Hawkins' shaft to prospect a promising channel of ground. This drift is now in 4½ ft., and has been set on contract at $6 per foot. Arrangements have been completed for bringing on the rope from the Briol's hoisting-engines to the Provost shaft, which work very satisfactorily. We are now driving south from the shaft on some streaks of ore, which, although small, are worth about $8 per ton. An advance of 9½ ft. has been made, and there is a slight improvement in the end.—Mill: 20 stamps 24 days crushed 792 tons of ore, yielding 209·47 ozs. of gold. It is unfortunate that both the No. 1 and No. 2 ore bodies should be cut off, where we are following them, at the same time by greenstone; but if our past experience is any guide to the future we shall find these ore bodies again in sinking through the greenstone—in fact, these cross-courses of greenstone have, as a rule in this mine, a beneficial effect on the grade of the ore in their neighbourhood. I ship you to-day in the usual manner bar No. 33, weight 200·47 ozs. Insured value $3250, and cable you "700, 92, 200, 3250."

NEW EMMA SILVER.—George Cullins, October 31: My last letter is under date of 24th inst., since which time east level has been extended 14 ft.; total distance from cross cut, 380 ft., with no material change in appearances. Have started cross cut from near end of east level, as I wrote in my last, and have driven 8 ft. with no change in rock since starting it. During September 47½ tons of ore, concentrated by tributers, sold for $3259, producing to company $721 nett.

NUNDYDROOG GOLD.—B. D. Plummer, October 27: Mining Operations: Webb's shaft is now down 52 ft. below the 95, and 148 ft. from surface. The ground continues very hard to cut; there is no change to notice this week, nor do I think we shall have much change before the shaft is got down 70 ft. below the 95, then we shall drive under the old working, and I hope satisfactory results will follow. Taylor's shaft has been made the full size and securely timbered from the junction of the lode with the downright to the 95. This company of coolies are now employed in Taylor's shaft below the 95; they will go on working as long as the water will permit, then we shall have to stope until the 16 in. engine and the pumps are got to work below the 95. One English miner is employed in Taylor's shaft, and two in Webb's shaft. Taking all into consideration we get on very well, but the ground in both shafts is uncommonly hard. The 95 north end has been driven 2 ft. 6 in., the lode is split up with ribs of schist, and is letting out the usual stream of water. At present it is not of value. Everything is receiving our best attention, and the work so far has been well done.—Surface Work: The engineer is getting on very well with the erection of the 16 in. pumping engine. The masons are also getting on quickly with the building.

ORGANOS GOLD.—J. G. Green: In reply to your enquiry with regard to our reserves at Organos, I beg to give the following information:—As explained in my report of the 1st September, we have been confining our milling work e ntirely to stuff giving a good percentage of free gold, for the reason that our machinery requires some additions to it to enable us to treat successfully with the auriferous pyrites. Most of the stuff treated up to the present has been obtained from the back of the new lode at Te Encontre. All the ground between Nos. 1 and 2 levels remains intact, and is opened ready for stoping all of the section is in a fine massive lode containing abundance of pyrites. Contents estimated—96 ft. long by 50 equal to, say, 136 fathoms, worth 3 tons of 3 oz. stuff per fathom, or equal to 1224 ozs. of gold. The end of the No. 2 is in a good lode, quite equal to anything we have seen, and there is a mighty hill before us, all virgin ground. At No. 3 in the old lode we have a section of ground opened containing similar character stuff, but not so rich, say, 400 fms., worth 2 tons of 1 oz. mineral, or 800 ozs.; but our main object at this level (No. 3) is to cross cut to the new lode proving so rich upwards. When I left the mine there remained about 15 fathoms to drive to intersect said lode. Should it prove as rich at this deep level as upwards our reserves will be immense, and the indications are all in favour of this desirable state of things, because all along the sole of the No. 2 the vein is masterly and rich. Still deeper sections can be won by adit driving, which I will attend to immediately I am satisfied of the vein holding down rich. Above the No. 1 to surface is where our present returns are principally obtained from. At present we are working about 5 fathoms high as an open cast. It will yield on an average 3 tons of 2¼ ozs. to the fathom, though occasionally we find exceedingly rich bunches; for instance, 12 tons yielding 108 ozs. were obtained during August from one splendidly oxidised portion of the lode; there is plenty of ground before us in this direction, and the hill rises rapidly—another advantage. To sum up, then, our reserves actually in sight are as follows:—Above No. 1 to surface westwards on an average, say, 20 fathoms × 6 × 7½ ozs. per fathom, 900 ozs.; section of ground already opened between No. 1 and 2, say, 136 fathoms, at 9 ozs. per fathom, 1224 ozs.; above No. 3 on old lode, 800 ozs.; below No. 2 on lode allow, say, 5 fathoms deep, because the lode is rich all along the sole, say, 80 fathoms at 9 ozs. per ton, 720 ozs.; total, 3644 ozs. As I have stated before should our No. 3 cut the lode rich, we shall have three ends going into the heart of a great hill, and our reserves may safely be put at hundreds of thousands of ounces. The figures I have given relate to that only which is actually in sight, and do not apply to any prospective work whatever.

OURO PRETO GOLD.—Robert Wendeborn, October 20: Passagem Mine: The stoping operations were confined to the big stope west of the 215 north east, and to the working down the bottom of the 215 and 190 levels south west for laying the tramroads. The ore brought to surface and to the mill during the month of September, was obtained from the three places just mentioned. It has produced very well in the mill, returning over 8½ oitavas of gold to a ton of ore treated. There is evidently a large deposit of good ore in this south west section of the mine.—215 Metre Level North East: The end has lately improved considerably. On the 15th of this month it was more than half size in a fine pyritous lode. Ore which I broke from the floor in the level showed specs of visible gold.—Shaft No. 2: Sinking of same is progressing in talcose sterile quartzite. The lode carrying turmaline and pyrites is now forming the roof of the shaft and is in sight.—Level to Bursco Secco: Nothing of importance has been disclosed by the advance during the month. There is the lode coming and going, the black slate is still predominant.—Level to north east from Vertical Rise in Shaft No. 2: After the roof been intersected by the vertical rise a level was commenced in the direction north east in the strike of the lode. By the advance of this level, the ground between the level to Buraco Secco and the 215 north east will be explored and prepared for stoping. The level will divide the distance about equal. It is advanced 4 metres, in a dark thinly laminated slate resting on the quartzite. Small veins of quartz and pyrites are running between the slate, which may form into a compact and productive lode any day.—Reduction: It is pleasing to report so good a produce per ton of ore treated. Tho ore being derived from places which are distant over 150 metres from each other in the strike of the lode, shows that there is good ore in the mine, and that the gold is not confined altogether to the one or the other particular spot, but that it is spread more or less uniformly through the lode, more especially in the deeper mine.—Construction: A good deal of mechanics' work was to be done and is done now about the 24 stamps mill in the way of altering the water course preparing additional accommodation for breaking up and separating the ore delivered from the mine.—New Drawing Wheel: One side of the wall which required a good deal of trimming of stones is nearly up, and the other side is expected to be finished by the end of the month, when the erection of the wheel will commence. It should go up speedy then as the timber work is all prepared.

Raposos: The deep adit was advanced 8 metres 20 centimetres during September. It appears that productive lode has been intersected. The adit is hardly far enough advanced that the Shapeo do Sol lode should have been cut by it, still it may be for a small change in the angle of dip of that lode towards east would have brought it in the reach of the adit. Middle adit was driven 7 metres 10 centimetres; after piercing a layer of slate rock, mixed lode carrying quartz and pyrites has been met again, corresponding to what is found in the Mina Grande adit. The level north in Sarilho lode advanced 6 metres 50 centimetres. Nothing further is reported as to the nature of the lode. The level north in Mina Grande lode as a fairly looking shoot of ore was opened up in the end the captain was instructed to rise on it; the ore is reported showing favourable samples; the stuff quarried is stored for the present. Canal shaft was sunk 3 metres 50 centimetres; the ore deposit measures 6 metres thick by 4 metres 50 centimetres wide. The ore is stored until enough is at hand to have done a fair trial stamping. Mina Grande adit was advanced 6 metres through decomposed lodestuff showing gold in washing.—Construction: The reservoir is about finished for this season; a part of the labourers were sent to the mine on the 1st of this month. The erection of the new stamping-mill is being continued.

RUBY AND DUNDERBERG.—The report on mines for the week ended October 25 reads as follows: Dunderberg: The winze below 600 ft. level has been cleaned out; the bottom was found at a depth of 11 ft., containing a seam of low-grade ore about 18 in. in width, which has been followed down 6 ft., total 17 ft. below the 600. There are nine tributers at work: 10 tons of ore shipped during the week.—Lord Byron: The north drift from the bottom of the shaft has been advanced 8½ ft. during the week; total, 95½ ft. from the shaft. The end is in favourable-looking ground for ore. The winze at the north end of the stopes, 50 ft. above the bottom level, is now down 20 ft.; the ore in the bottom is about 1 ft. in width, of good quality. A survey is being made to-day, which will give the distance between the bottom of winze and the end of bottom drift. No ore shipped during the week; six men at work.—Home Ticket: The ore body in winze below 300 ft. level is improving slightly in size; it is now about 15 ft. in length, and from 2 to 4 ft. in width, and has produced about 20 tons of ore this week, but the quality is not so good. The upraise above 300 ft. level is in very hard rock; progress this week 4 ft.; total, 10 ft. Above the 300 the small seam of ore still continues, but shows no improvement so far.

SANTA BARBARA GOLD.—T. S. Treloar, October 3rd and 17: The minera received at the spalling floors from the mine during the month of September, amounted to 1497 tons, of which 292 tons were rejected as refuse stone, and 1205 tons stamped. The total produce obtained was 3301 oits. of gold, or equivalent to 2·739 oits. per ton stamped. The water supply having diminished owing to the dryness of the season, it became necessary to pick the stone more closely for the stamping mills, hence the improvement in the yield per ton stamped as compared with August. This produce of 3301 oits. of gold valued at 8s. 6d. per oitava, amounts to 1402l. 18s. 6d. sterling, and the estimated working cost for the month at Exchange 18¾d., being 1328l. 14s. 5d., leaves an estimated profit of 74l. 4s. 1d. on the mine working account during September. It is estimated that an additional profit of about 110l. accrued during September under the item of Exchange. There was no expenditure charged to capital account during the month.—October 3: The lode in the stope is improving rapidly and we expect to see henceforth a satisfactory increase in the gold returns. Just now we are feeling the falling off in the water supply for two of the stamping mills, but this will be of short duration, since the wet season is apparently setting in. Holland's shaft was sunk last month 1 fathom 4 ft., and fair progress is being made at date.—October 17: The improvement in the lode in the stope under the bar continues, and I have the pleasure to advise a marked improvement also in the lode in Holland's shaft, some of the stone therefrom now being good enough to be sent to the stamping mills.

The Mine Captain reports as follows for September: Holland's Shaft: This shaft has been sunk 1 fathom 4 ft., making its total depth 91 fathoms 3 ft. The lode is 7 ft. wide, and has considerably improved in appearance, containing a quantity of hornblende and garnets, and 2½ ft. of it carrying fairly good lines of pyrites.—Stope No. 1: This stope has been extended 3 fathoms 4 ft. 6 in., the lode is 10 ft. wide, and has considerably improved in quality towards the latter part of the month; it is now yielding fair quality mineral.—End under the Bar: This end has been extended 4 fathoms 3 ft. The lode is 10 ft. wide of fair quality. —Winze: The winze has been sunk 1 fathom 4 ft., making its total depth 6 fathoms 2½ ft. The lode is 12 ft. wide of fair quality.—Timberwork: The timberwork has been as follows:—four pieces put in to form a stull under the bar; six pieces put in No. 1 stope for securing the hanging-wall; 24 ft. of tramroad put in at the 80, and 24 ft. of runners renewed in the skip-road. Also the tram and skip-roads kept in repair.—Regos (watercourses).—On No. 1 rego four sets have been put and lathed with candela poles. The repairing of timberwork on this rego is completed, but it being the latter part of the dry season, the water has considerably fallen off. The Lavra Velho rego has been kept in repair and is giving a full supply of water. The new rego has been cleaned up in several places, and kept in repair. The output of stone from the mine during the month is 2347 wagon loads, of which 2120 came from the stope and winze, and 227 loads from Holland's shaft. The number of wagon loads per man is 48·94.

UNITED MEXICAN.—Mines report for week ending October 24: El Diamante: 1st Drift of Adela West: The vein is in a ramification of quartz, with good appearances—pentas.—2nd Drift of Adela West: The lode is now 60 centimetres broad, and some ore has been found during the week.—2nd Winze of Adela: The lode is 50 centimetres wide, but the ore is not as good as it has been. Expenditure, $285·44.—San Cayetano de la Ovejera: 15th Winze of Adela: The vein is 1·20 metre wide, but unproductive.—16th Winze of Adela: The vein is 1·20 metres wide, of which 60 centimetres are in pretty good ore, and improving. —17th Winze of Adela: The vein is 2·40 metres wide, of which 60 centimetres are in fair ore.—18th Winze of Adela: The vein is 1·50 metre wide; the little ore it contains is found in bunches.—20th Winze of Adela: The vein is 1·10 metre wide, but the ramification of ore is of a better quality.—15th Winze of St. Andrew: The vein is 2·10 metres wide, but the value of the ore is less than hitherto.—16th Winze of St. Andrew: The vein is 1·80 metre wide, of which 50 centimetres are in fair ore, and improving. Expenditure, $3114·86.—Santa Monica: Crosscut of St. John South: In the same state as hitherto. To-day the working has been stopped for the present. Expenditure, $132·30.—Buenos Ayres: Keeping up the rights to the property. Expenditure, $22.—San Antonio de la Ovejera: Drift of San Antonio East: The lode continues to show good appearances—pintas. Expenditure, $102·39.—San Miguel de la Providencia: Drift of Providencia West: The appearances, pintas, are improving, and the width of the lode is 60 centimetres. Expenditure, $34·04—Adit: The inclination of the lode has changed; it is now contra natural or dipping.—Drift of St. Gertrude: Since the 3rd instant an infiltration of water has hindered our advance. Expenditure, $62·46. The lode is 1·90 metre broad, with good appearances pintas. Returns San Cayetano, $6182·04; returns El Diamante, $312; remittance received, 3000l.

SUBSIST IN CORNISH MINES: A QUESTION OF LAW

Probably for the first time the question of law surrounding this matter came forward at the Redruth County Court, on Tuesday, before Mr. MONTAGUE BERE, Q.C.—The facts were very simple. Two miners—tutwork men—claimed 1l. each from Capt. JOHN JENNINGS, representing the shareholders of South Tolcarne. The defendant company urged that the 1l. in each case was deducted as "subsist," both men having with four others, making up the pare, received 1l. each in December, 1883. The men denied ever having had subsist in the mine, but the books had this duly entered. Such were the bare *pros* and *cons.* of the case.—The Judge enquired of the men what, in their opinion, constituted subsist, and the answer was to the effect that it was money advanced one month, and deducted next, and then, should the pay be slight at the end of the second month, any money advanced would be considered a fresh loan, or subsist.—His Honour asked the advocate for the defendants if subsist, in his opinion, could be given in respect of a contract, and at the end of that contract a new contract entered into, and then the subsist taken out?—Mr. THOMAS: Yes; according to the rule of mining. There are thousands of pounds now on that very principle.—The Judge said he could not take this as the custom until it was proved, and he adjourned the case in order to allow Mr. THOMAS, for the defendant company, to prove what the custom was—whether subsist was to be deducted before the completion of a contract, or whether it could be held over for a period of six years. The case will interest the mining fraternity. It may be remarked here that had the principle of "squaring" accounts two-monthly been rigidly followed at Dolcoath the adventurers would not recently have had to clear off more than 4000l. in a "tutwork and wages" account.

THE directors of the Ruby and Dunderberg Mining Company received the following telegram from Eureka on the 17th instant: —15 tons tribute ore shipped, and 22 tons tribute ore smelted, producing to company $176: 36 tons ore shipped and smelted on company's account realising $1200.

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Those who wish to buy or sell any mining shares should consult Mr. JAMES. Mr. J. devotes his entire attention to home and foreign mines, and places his special information at the disposal of his clients. That mining offers undoubted advantages for quick returns no one can deny. Look at the enormous sums of money paid in dividends by home and foreign mines. A large number of wealthy families owe their present proud positions to adventuring in LEGITIMATE MINES. With a better price for metals many of the smaller priced shares would immediately advance some hundreds per cent.

TREVAUNANCE AND WEST KITTY SHOULD BE BOUGHT AT ONCE.

There are many mines worth attention, as proceedings of recent shareholders' meetings prove beyond doubt. During the last 40 years there has no such opportunity presented itself as the present for investment in British mines. Metals are certain to advance. In well-informed circles no doubt is entertained on this point. Buyers must not further delay orders.
SeeSelected List published by S. JAMES, 14, Angel-court, London, E.C.

SPECIAL BUSINESS in the following or part:—

50 Bedford United, 11s	100 Akankoo (f.p.), 2s.	30 New Albion, 29s. x.d.
30 Carn Camborne, 3s.	500 Balkis Consolidated, 5s.	20 New Emma, 7s. 6
20 Devon Con., £2¾.	50 Bratsberg, 15s.	100 Nouveau Monde, 3s. 9
100 Devon Friendship, 9d	200 Cartago, 2s. 6d.	50 Nundydroog, 21s.
50 Drakewalls, 3s. 3d.	10 Copiapa, £3 11s. 3d.	100 Nine Reefs, fully paid 8s. 3d.
30 East Blue Hills, 32s 6	25 Canada Copper, 3s.	100 Ooregum, 13s. 3d.
25 Ecton, 25s. 6d.	100 California Gold, 4s 3d	100 Ooregum pref. 13s pd. 13s. 9d.
15 Frongoch, 5s. 6d.	100 Callao Bls, new 17s pd. 11s. 9d.	100 Oscar Gold, 6s. 6d.
5 Great Laxey, £9½	100 Chile (New), 18s. pd., 8s. 9d.	70 Oscar Gold, Vendors, fully pd. 4s. 9d.
30 Great Holway.	20 Chontales, 2s. 6d.	50 Organos, 30s. 6d.
100 Home Mines Tst. 14s.	100 Colombian Hyd., 9s 9	100 Orita, 30s. 6d.
30 Killifreth, 12s. 6d.	100 Devala Moyar, 7s. 3d.	100 Pestarena, 3s.
20 Kitty St. Agnes, 15s 6	50 Denver Gold, 1s. 6d.	100 Potosi, New, 4s. 3d.
20 Leadhills, 47s. 6d.	100 Eberhardt, 3s. 9d.	100 Port Phillip, 1s. 3d.
30 New Kitty, 35s.	2 El Callao, £50.	15 Panulcillo, £3 10s. 6d.
15 New Wt. Caradon, 3s.	30 Frontino, 16s.9 d.	100 Ruby, 11s. 3d.
25 Phœnix United, 35s.	50 Glenrock, 6s. 9d.	20 Richmond, £4. 18s. 9d
20 Polberro, 42s.	100 Gold Coast, 1s. 3d.	25 Rio Tinto, £12½.
20 Prince of Wales 9s. 3d	100 Hoover Hill, 9s. 3d.	50 Schwab's Gully, £3 7 6
100 Parys Copper, 6d.	150 Indian Consolidated, 13s. 9d.	100 Silver Queen, wntd.
10 Roman Grav., £4½.	10 Javali, 3s.	50 Spitzkop, 15s.
100 South Caradon, wtd.	500 Kohinoor B, 2s. 3d.	50 Tacquah, 1s. 9d.
10 So. Condurrow, £6½	100 La Plata, 6s. 9d.	100 Tocopilla, 6s. 6d.
20 South Darren, 9s.	200 Lisbon-Berl. New 4s. 6	11 Tolima A, £3½.
10 South Frances, £7¾.	50 La Trinidad, wntd.	10 Tolima B, £2½.
20 Trevaunance, 45s. 6d.	20 Mason-Barry, £10½	100 Transvaal Gold, 4s. 6d
5 Van, 26s. 6d.	50 Montana, 59s. 6d.	20 Tambracherry, 8s. 6d.
10 West Kitty, £8¼	20 Mysore Gold, £3 12s 6	100 Victoria Gold, 4s.
10 Wheal Basset, £7¾.	250 Nacupai, wntd.	
20 Wheal Crebor, 23s.	50 Montana, 59s. 6d.	20 U. Mexican, £3¾.
50 Almada, 1s. paid, 6s. 6	20 Mysore Gold, £3 12s 6	100 Victoria Gold, 4s.
28 Asia Minor, 5s.	250 Nacupai, wntd.	

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25 Bratsberg, 17s. 6d.	25 Holywell District Ld.	50 Potosi, 4s. 3d.
100 Bedford United, 12s 6	100 Hoover Hill, 9s. 3d.	50 Ruby, 12s. 6d.
40 Colombian Hyd., 9s.	40 Indian Consols, 14s 3d	50 Russell Gold, 11s.
100 Cartago, off, wtd.	50 Kohinoor B, 2s.	10 Rio Tinto, £12 12s. 6d
75 California Gold, 5s.	30 La Plata, 7s.	10 Richmond, £4 16s.
60 Callao Bls, 10s. 6d.	20 La Trinadad, £4 5s.	40 South Darren, 8s.
50 Chile Gold, 7s. 3d.	20 Montana, £3 1s. 3d.	120 Transvaal, 4s 6d.
100 Chontales, 2s. 6d.	20 Mysore Gold, £3 11s 3	30 Telephone Northern District,£5 fully pd. off. wntd.
20 Colorado, £3¾.	50 Nine Reefs, 8s. 6d.	
50 Devala Moyar, 8s. 9d	75 Nouveau Monde, 3s 6	25 U. Mexican, £3 6s. 3d.
150 Denver Gold, 1s. 9d.	25 Nundydroog, 22s. 6d.	100 Victoria,
10 Devon Consols, £3.	100 New Albion Gold.	20 Van, £1 13s. 9d.
75 Eberhardt, 4s.	40 Ooregum, 14s.	25 Wheal Peevor, 10s.
50 East Blue Hills, 32s	30 Organos Gold.	200 Yeoland Consols, fully paid, off. wd.
70 Frontino,	25 Orita. 32s. 6d.	
40 Glenrock, 7s.		

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LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Nov.14—	Foxdale	100	£ 9 18 6	Quirk, Barton, & Co.
17—	Pierrefitte	50	8 1 0	J. F. Kimmel.
19—	Roman Gravels	100	7 18 6	Panther Lead Co.
——	Great Holway	24	9 15 0	Walker, Parker, & Co.
20—	South Darren	25	12 7 6	Panther Lead Co.

BLACK TIN.

Date.	Mines.	Tons	c.	q.	lb.	Price per ton.	Purchasers.
Nov.13—	East Blue Hills	4	18	2	22	£51 12 6	Daubuz and Co.
——	ditto	0	10	1	14	32 5 0	ditto
17—	Wh. Metal & Flow	3	0	0	0	43 7 6	Williams, Harvey, &c.
18—	Prince of Wales	1	6	0	4	41 5 0	Daubuz and Co.

COPPER.

Date.	Mine.	Tons.	Price per ton.	Purchaser.
Nov.20—	South Darren	10	£ 5 1 0	Vivian and Sons.

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THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, NOVEMBER 21, 1885.

PROFESSOR ABEL ON COAL MINE EXPLOSIONS.

That the Address of Professor ABEL to the members of the Society of Arts at the opening meeting of the session commenced on Wednesday was marked by that grasp and able treatment of his subject, for which he has so long been distinguished, goes without saying. To those especially who have interested themselves, or by their position and connection with miners and mining are interested in the safety of life in mines, the subject which the learned Professor made the foundation of that address is one of deep concern. Without anticipating the report of the Commission on Accidents in Mines, now sitting, and of which Professor ABEL is one of the most prominent members, a refutation was tacitly given to the murmurs of those who of late have begun to cavil at the length of time that has elapsed without the issue of a final report by that Commission. In the forefront of his Address, and by way of showing that it is not those terrific explosions which fill the whole country with pity and dismay, that are chiefly responsible for the deaths that occur in the course of the year, a table is given showing the proportion of deaths from explosions in mines, from falls of roof and sides, and from other miscellaneous causes, to total deaths from all causes during the years 1875—1884. It would be tedious to go into this with any very great minution, but some examples may be given. In 1878 the loss of life by four explosions, including the Abercarn and Haydock accidents, were 302; the total loss from explosions was 536. The deaths by roof and sides falling were 469; and from other cases, 358. In 1880 the deaths from explosions amounted to 499; from roof and sides falling, 462; from other causes, 357. In the other eight years the deaths from explosions varied in numbers from 5 to 345; those from falls of roof or sides from 426 to 482; and those from other causes from 357 to 497. In the ten years the total number of deaths in mines was 11,135, of which 2562 only arose from explosions of fire-damp, but 4586 from falls of roof or sides, and 7148 from other causes. A comparison of the numbers in the table which we print elsewhere, will show that the Professor was justified in saying that, except in two years, the fatalities due to disastrous explosions were considerably in the minority compared with deaths from falls of roof and sides; and from 13 to 15 times less than the deaths due to all other causes but explosions. It is frequently said that the nature and causes of explosions are so well known, that in this scientific age there should be no difficulty in preventing the terrible loss of life that occurs in mines; and that all accidents in mines are therefore preventable. But the learned Professor takes exception to the assertion that the knowledge of the nature and causes of explosions was such that the fearful calamities that have from time to time startled the country could have been prevented, and he says that it is only lately that science has got anywhere near such knowledge. But the table referred to shows that, even such knowledge had existed, and if it had been applied successfully to prevent those disastrous explosions, only about one-fifth of the whole loss of life would have been averted. That the lives lost in mines are fewer in proportion than they were 30 years ago is undoubtedly due not merely to enactments of the Legislature, but to the interest in the question of improvements of all kinds tending to prevent loss of life which the numerous institutes of mining engineers and managers scattered over the country create and sustain. Hence it is, that to those who are concerned in any way with the various efforts being made to prevent loss of life in mines, the exhibits lately in the machinery section of the Inventions Exhibition must have constituted a most important feature of that Exhibition. But to Professor ABEL it evidently had an extra interest, after the labours that, as he incidentally tells us, the Accidents in Mines Commission have been undergoing. There being a great difference of opinion between men, some of them of great practical knowledge, some of great scientific skill, some combining both, upon various matters, such as the questions of open lamps or safety-lamps, the use of gunpowder and explosives underground, and the development of explosive matter by coal dust, it was only by experiments that these vexed questions could be set at rest, if at all. These experiments have necessarily taken a long time, since every appliance found wanting in some particular detail would be amended, if possible, by those interested in its adoption, and subjected again to the test; so that the Commission seemed never to have come to the end of its duties. It may be gathered, it appears to us, from the encomiums passed in reference to improvements made in the method of operation and mechanical appliances, on the mechanical drills driven by compressed air and wedges driven in by hydraulic pressure, that when the report of the Commission appears, the use of gunpowder underground will be condemned by it, and its disuse enjoined. The abolition of shot-firing in mines has long been steadily advocated by us, and we shall be much surprised if the coming Report does not enforce our view. The recommendation that ample means should be provided underground to enable the miner at work to properly timber the working places himself is one that commends itself to common sense in view of the enormous proportion of casualties arising from the fall of roof or walls. As the Professor points out the causes of these falls are numerous, and some of them not capable of being anticipated or averted; but in, we fear, too many cases the accident could have been prevented by careful timbering done at once. Sometimes the results that follow one of these falls, injurious as they are to life and limb, may be averted by the warning given by the previous appearance of the wall or roof; but in too many cases this warning cannot be seen owing to the feeble light given by the lamp, which for the sake of safety from fire-damp is deprived by the mechanism of a great deal of its illuminating power. It is, therefore, in accordance with the object of its constitution that the Commission should enquire into how to get a safe lamp with a good light. As far as fire-damp goes the electric light lamp is perfectly safe, and it gives a very brilliant light, but it is at present only available at fixed points, and has a further disadvantage that, unlike the safety-lamps, it is not affected by the presence of gas in such quantity as to be dangerous to life, and does not give warning of this danger. At present no electric lamp has been constructed of such a light weight as to be sufficiently portable, and, therefore, for the worker it is not available. It will be interesting to hear the result of the Commission's experiments with the some 200 lamps submitted to them. That the first result of the tests applied should have been a condemnation of the old safety-lamps does not detract from the value they have proved in days when the ventilation of mines was not so complete as now, and when the velocity of the currents which now cause those lamps to be dangerous, was something like a fifth of what it was. But it is a marvellous thing that the official recommendation of such a number of scientists and practical men as compose this Commission, volunteered by them at once on account of the responsibility they deemed to be incurred, should have been allowed, by those whose duty it is to regulate matters connected with the safety of life in mines, to go forth only in the form of a circular, with nothing to show that it had the authority of that Commission. Although there was no definite assertion of what the Commission intend to report as to different details, it appears that their experiments and tests have been most exhaustive, and those who can read between the lines of Professor ABEL's Address may confidently hope that most of the preventible causes of accidents in mines will be discovered, and a remedy suggested; and we heartily join with him in the hope that the results of their labours will be accepted with the confidence they merit, and speedily utilised by those responsible in the management of mines.

The Mining Market: Metals, Ores, &c.

METAL MARKET—LONDON, NOVEMBER 20, 1885.

IRON.	£ s. d.	£ s. d.
Pig, Cumb, f.o.b., Clyde	2 3 6-	—
,, Scotch pig, No. 1 Garthe.	2 6 0	
,, ,, Coltness	2 10 0	
,, ,, Clyde	2 6 0	
,, ,, Govan	2 3 0	
Bars Welsh, f.o.b. Wales	4 10 0-	—
,, ,, in London	5 0 0-	—
,, Stafford., ,,	5 15 0-	—
,, in Tyne or Tees	4 15 0-	—
,, Swedish, London	9 0 0- 9 10 0	
Rails, Welsh, at works	4 10 0-	—
Sheets, in London	7 0 0-	—
Plates, ship, in London	5 15 0- 6 5 0	
Hoops in London	6 0 0-	—
Nail rods, in London	5 17 6- 6 0 0	
STEEL.		
English spring	6 0 0-18 0 0	
,, cast	25 0 0-45 0 0	
Swedish, keg	12 0 0-	—
,, fag. ham.	12 10 0-	—
Rails at works	4 15 0- 5 0 0	
,, Light, at works	5 15 0- 6 0 0	
LEAD.		
English pig, common	11 12 6-11 15 0	
,, ,, L.B.	11 15 0-11 17 6	
,, ,, W.B.	12 0 0-12 2 6	
,, sheet and bar	12 5 0-	—
,, pipe	12 15 0-	—
,, red	14 5 0-14 15 0	
,, white	16 0 0-19 0 0	
,, patent shot	14 5 0-	—
Spanish	11 7 6-11 10 0	
SPELTER.		
Silesian ordinary brands	14 0 0-14 5 0	
,, special brands	14 5 0-14 10 0	
English Swansea	15 2 6-	—
Sheet zinc	17 0 0-17 5 0	

TIN.	£ s. d.	£ s. d.
English, ingot, f.o.b.	96 0 0-	—
,, bars ,,	97 0 0-	—
,, refined	98 0 0-	—
Australian	94 15 0- 95 0 0	
Banca	nom.	
Straits	94 5 0- 94 15 0	
COPPER.		
Tough cake and ingot	45 10 0- 46 12 0	
Best selected	46 10 0- 47 10 0	
Sheets and sheathing	52 0 0-	—
Flat Bottoms	55 0 0-	—
Wallaroo	50 0 0- 51 0 0	
Burra, or P.C.C.	49 0 0-	—
Other brands	nom. 46 0 0- 48 0 0	
Chili bars, g.o.b.	43 0 0-	—
QUICKSILVER.		
Flasks, 75 lbs., war.	6 0 0-	—
PHOSPHOR BRONZE.		
Alloys II.	£93 0 0	
,, V.	109 0 0	
,, VI. and VII.	115 0 0	
,, XI.	95 0 0	
,, Duro A, Duro B	90 0 0	
ANTIMONY	£35 0 0- 35 10 0	
BRASS.		
Wire	5d. -	
Tubes	6¼ -7¼d.	
Sheets	5¾ -6¾d.	
Yel. met. sheath. & sheet	4¾-5	
TIN-PLATES.*	per box	
Charcoal, 1st quality	0 18 0- 0 19 0	
,, 2nd quality	0 17 0- 0 18 0	
Coke, 1st quality	0 15 0- 0 16 0	
,, 2nd quality	0 14 6- 0 15 6	
Canada, Staff. or Gla. at Liverpool	8 17 6- 9 2 6	

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 5s. per box more than IC quoted above, and add 5s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

GENERAL REMARKS.

A complete change has come over our markets. Gloom and depression have at last been followed by activity and cheerfulness. In place of despondency sanguineness prevails, and where before there was every desire to sell there is now a general anxiety to buy. To say that the markets have been animated and inflated would not give an adequate description of the excited movements of the week. Buyers and sellers have constantly exchanged places, and the better tone and upward movement which we have repeatedly anticipated have developed into general activity. The influence of one metal has extended generally, and the little better feeling, the increased desire to buy, has burst forth into activity, and the whole trade has been inflamed by a sudden, headless, and excited speculation. All features connected with the markets have been disregarded; no price has been considered too high, and though war has broken out between Servia and Bulgaria, the elections are close at hand, and money has shown symptoms of tightening, yet no attention has been paid to these matters. Purchases by the outside public have been the order of the day, and low prices are all that have been considered. Iron, copper, and tin have changed hands over and over again at constantly improving values, simply because their respective prices were cheap, and the increase in public stocks of iron of about 5000 tons in merely one week, and no reduction in the heavy stocks of copper, have failed to make the slightest impression upon the market. Nor, apparently, does the indisposition on the part of regular traders to follow up the advance, make any difference to the reckless speculation of the week. An opportunity is afforded to the regular holders and dealers to part with th stocks at rather improved prices, and many of them hav been freely availing themselves of this golden chance, and pass their stocks on to outsiders, and thus circulate warrants freely and widely. How long this will last no one can say, but whilst the speculative feeling exists, whilst there is such a rush to buy by outsiders any exorbitant prices apparently can be demanded, and are at once readily paid. Late yesterday afternoon there was a collapse in copper, iron drooped, and tin eased off, and to-day, whilst copper has somewhat recovered, though not closing at the best, the other metals have kept steady. Such wild, reckless, and of late years unprecedented, speculation could scarcely be expected to last long, and it is most remarkable that in so short a time as one week such a sharp and substantial recovery could have been effected in prices. We have often drawn attention to the risk incurred in playing with present low prices, and the sharp movements of the week will be a warning to hesitating buyers, and show them the undesirability of holding aloof and keeping their orders in abeyance when limits are practicable. In the general excitement

t may be somewhat difficult to form an accurate estimate of the present actual condition of the trade; but, at the same time, it is very questionable whether the movements of the week will tend to promote general trade. That some strong and unusual measures are requisite to restore trade to its normal and usual condition from its severe state of depression is probable, but it is not likely that that end will be attained by reckless and excessive speculation. Though speculative buying during the week has been more than spirited, ordinary trade has been very slack, and in fact more limited than before because regular buyers will not pay the advanced prices and prefer to do nothing until the outcome of the present inflation is to be observed. Prices for manufactured metals have been nearly all nominal, quotations, however, being a little stiffer, but as manufacturers know that buyers will not pay improved prices, they do not put up their quotations materially. The advices from the great centres of industry are not very promising, and whilst in some instances prices are reported a little higher in sympathy with the advance upon our market here the trade is reported very dull, and many of the works are unable to secure enough orders to keep their mills in operation full time. The collapse in copper last evening was serious, but this morning in a wild and excited manner the price recovered all that it had lost, receding, however, again to some extent, whilst iron and tin have been well supported, but have not to-day undergone any great change. It is impossible to predict the outcome of all the present excitement, but the course of events during so much excitement, irregularity, and change, will be watched with no small amount of anxiety by every trader in metals.

COPPER.

This market has been very excited and irregular, and speculative buying has been exceedingly spirited. There have been numerous fluctuations; but they have been mostly in an upward direction. The Chili charters were advised last Monday as 1600 tons; but this made no impression upon the market, and operators bought freely, with a consequent substantial advance in prices. It would be useless to quote the official quotations from day to day, as they so slightly represent the market, business invariably being done at much higher rates after the Official List had been made out, although yesterday, the price having improved in the morning to 44*l.* 5s. cash, suddenly collapsed in the afternoon to 42*l.* 15s., rallying again to 43*l.*, sellers over; but to-day recovered to what it had lost, and afterwards receded again. It is rather difficult to state the cause of the sudden burst of activity which has characterised this metal, because there is positively no legitimate reason for the change. It has arisen merely from speculation and the influence of the Stock Exchange. It is hard to realise that in so short a space of time as one week there should have been an advance of close upon 6*l.* per ton, especially as there is nothing to show the slightest change in the actual position of the market. Supply and demand, that is to say, legitimate demand continue in their regular course, the supply according to advices for the first half of the month being rather above deliveries, so that there is an abundance of supply, and however active speculators may be in buying there is ample copper for them, not only in the very heavy stocks that are already here, but fresh supplies can be brought over in abundance at very short notice, and with higher prices probably will be sent whether the copper is required or not. Nothing but the mad, wild, and excessive speculation of the week could have caused such an advance as has been effected in this metal, and although the movements are satisfactory in the interests of holders, as they have enabled them to realise favourable prices after a most lengthy and trying period of depression, during which they have had to submit to numerous and heavy losses, incurring sacrifice after sacrifice, and crippled by the many serious and great concessions they have had to make, still in the interests of the trade at large it is questionable whether the movements of the week have not been attended with adverse effects. Regular trade has, in consequence, been brought almost to a standstill, shipping orders being especially limited. Of course, whilst manufacturers are fairly well booked with old orders, the matter is not of so much importance, but consumers and shippers having well supplied their requirements at cheap prices, and in many instances laid up private stocks, they are not very ready to pay the advanced rates. The mere changing of warrants from one operator to another gives no relief to the market. It supports prices whilst the speculative mania lasts, and how long such a mania would last it is impossible to foretell, and even should the increased prices not attract extra supplies as it is generally anticipated they will, still the very fact of consumption and shipments falling off would necessitate an increase in the already far too heavy stocks, and thus the market would be placed in a more unfavourable position than before the speculative rise. Thes especulative movements rarely do any good unless they are supported and accompanied by increased regular trade then the one helps on the other, but when excessive speculation exists by itself it is, as a rule, continued but for a short time, for as soon as operators have burnt their fingers a little they desert the market, a fall in prices follows, and, as a rule, great is that fall.

IRON.

A decidedly better tone has pervaded this market, and prices for the raw material have not only fluctuated, but higher rates have been realised. In Scotch pigs, the medium for speculation, buying has continued very spirited, the improved prices apparently in no way checking the demand. The advices from America, if not positively cheerful are certainly not gloomy, and this has tended to engender confidence and to increase the desire to purchase. So far, the improvement has not extended to manufactured iron, but perhaps after so long a period of depression none, except perhaps the most sanguine, could expect the whole trade to be suddenly raised from its state of lethargy, and characterised by a healthy and cheerful condition. By degrees the trade is more likely to revive, and it is a welcome sign to see even one branch only thrown into a state of animation and excitement. That much, if not most of the extra business doing, is speculative is not open to question; still, that shows that operators discern something in the future which is likely to lead to a speedy restoration of trade, and by which enhanced prices may be realised. Speculators are invariably the first to see the approach of better times. They are always on the look out for the first symptoms of revival. They study the advices from abroad as well as at home, nay they often go so far as to promote business themselves by persuading regular traders by their actions that we are on the eve of a restoration in business. Operators buy and prices advance, and hesitating traders, fearful that the upward movement may be carried to extremes, come forward and secure their wants, even going so far at times as to anticipate their requirements before further improvement occurs. How long the speculative movement will continue has yet to be seen. It may be but for a short time, or it may develope to such gigantic proportions if the British public can only be attracted by the low prices, as to rouse the general trade from its condition of despondency. That is the essential requirement at the present day, and if this present speculative movement attains that end it will be looked back to with pleasing remembrances as the starting point of trade revival from one of the most lengthy and severe trade depressions that have ever existed in the whole history of the trade. It has also to be noted that in addition to the extra speculation in Scotch pigs there is an increased demand for makers' iron, while prices have also rallied. Not in proportion to the rise in warrants, that would be out of reasonable anticipation, but at all events they are a shade higher, and have, therefore, moved in the right direction; and, as their movements are regulated a great deal more by actual business than speculation, the upward tendency is very appreciable, and shows that there are some good features in the trade which if developed may lead to a speedier revival than what is generally expected. We would also refer our readers to the more cheerful advices from Middlesborough, which show a steady improvement, but not a very substantial one. In anticipation of these better times which are to dawn upon our markets, every preparation is being made, stocks are being greatly increased to meet all emergencies, both in Glasgow and Middlesborough by some thousand tons or so per week in each place, so that, however extensive the demand may be, there will be no lack of supply. The Scotch shipments last week again compared favourably with these for the corresponding week of last year; but, at the same time, there was no particular increase compared with the previous weeks. The imports of Cleveland iron into Scotland have again increased, the comparison for last week with the same week of last year showing a much heavier quantity, whilst the totals for the whole of this year is much above what it was for the corresponding time of 1884. The Glasgow Warrant Market has been very irregular, and a somewhat extensive business has been transacted. Opening on Monday with a very strong tone the price advanced to 43s. 1d., but afterwards receded to 42s. 10½d., and on Tuesday the opening price was 42s. 11d., fell away to 42s. 7½d., and finally closed with buyers over at 42s. 8d. On Wednesday the market was very irregular and excited, with a firm tone, and a very large business was transacted from 42s. 10d. to 43s. 9d., closing 43s. 7½d. Yesterday again there was a very large business carried through down to 43s. 5d., and the closing price to-day is 43s. 6d. The shipments last week were 7131 tons, against 6678 tons for the same week of last year being an increase of 453 tons, and which makes the total shipments for the whole of this year 398,317 tons, against 485,953 tons for the same time of last year, and 578,470 tons for the similar period of 1883. There are still 91 furnaces in blast, but the public stock has been further increased by 3297 tons, and now amounts to 639,078 tons, against 635,781 tons a week ago. The imports of Middlesborough pig-iron into Grangemouth last week were 10,365 tons, against 7650 tons for the similar week of last year, being an increase of 2715 tons, and which makes a total increase for the whole of this year, compared with last, of 96,577 tons. The Cleveland market has been decidedly firmer in sympathy with the better tone upon the Scotch market, and sellers are firm at 32s. for No. 3. The shipments have been rather better, being about 37,000 tons so far during the present month. Forge iron is quoted at about 31s. The public stock has further increased by 1937 tons. There is not the same improvement, however, in manufactured, and sales are somewhat difficult to effect. Bars are quoted at 4*l.* 15s., angles 4*l.* 7s. 6d., and ship-plates 4*l.* 10s. per ton. There is not much fresh business offering at Wolverhampton, and the mills are scarcely so busy as the old orders are being completed. Prices tend in favour of buyers, who are slow to avail themselves of the easy rates. Sheets can be bought at 6*l.* 5s. singles, and marked bars at 7*l.* to 7*l.* 10s., and common at 5*l.* to 5*l.* 10s. Pigs are quiet at 41s. for Lincolnshire, 38s. 6d. for Yorkshire, and 39s. for Derbyshire. Prices at Birmingham have been favourably influenced by the stronger tone of Scotch pigs and other metals, but business has remained quiet, and orders are rather difficult to secure, and some of the works are by no means fully occupied. Prices of marked bars range from 7*l.* to 8*l.* 2s. 6d., and common can be bought at 5*l.* Advices from Lancashire report a more hopeful prospect, owing to improved enquiries from America. There is a very fair demand from the United States for shipment from Liverpool, but it has so far not resulted in actual business.

TIN.

During the forepart of the week this market was steady and fairly strong, but on Wednesday the general excitement prevailing in copper and iron spread to tin, and business was done up to 92*l.* 15s. cash, or an advance of 25s. to 27s. 6d. upon the previous day's prices, whilst yesterday business was done at 94*l.* 7s. 6d. for cash for Straits, and 10s. per ton more being asked for Australian, but the market eased off slightly towards the close. To-day the tone has been steady, and a fairly large business has been transacted. It may be a matter of some surprise that this metal should have been the last to be caught in the general inflation because the stocks are light, and there are as we have often pointed out many favourable features in the market, but when rampant speculation sets in the merits of a market are frequently disregarded. Had operators turned their attention to this metal instead of copper and iron there would have been more chance of the advance being permanently sustained because in tin the supply is not in excess of the demand as is the case in the other two metals. However, there has been a substantial recovery and the rise in tin, though taking place later than the other two metals has been none the less marked. There is also this difference in tin which does not exist in the other metals, consumption has apparently not diminished. As consumers have wanted their tin, so they have purchased irrespective of what prices may be ruling. In fact, the little rise and the little extra speculation seems rather to encourage regular buyers to increase their purchases before any further advance is effected, and therefore the movements of the week must in all respects be considered satisfactory. There is another feature which in the interests of holders must be considered satisfactory and that is the supply of this metal is limited one month, it may be a little more than another, but taking the aggregate supply it is only of a limited character, and there is therefore not the fear that there is in other metals that the improved prices will materially attract supplies. There is consequently no probability that this market will be overburdened with heavy stocks, and the prospects of the market must in all respects be considered cheerful. There is also still another very important difference in this metal compared with the other two, to which we have made reference, and that is whilst in copper and iron the speculative buying has been principally by outside operators, who for the most part probably know little or nothing about the markets, in tin the buying has chiefly been by the leading operators, who already hold the bulk of the present stock. That being the case stocks are becoming more and more concentrated, and the firmness with which holders have been enabled to support their market during the past few months may be further increased as there will be probably less pressure to sell than if stocks were widely circulated. The market is well sustained now at the improved prices, and although it may be a little neglected as the principal attention just now is given to copper; still, for all that, there are no signs of crumbling away, but, on the contrary, every indication of strength. There is one feature which greatly tends to inspire confidence and to thoroughly re-establish the tone, and that is the material improvement in the price for forward tin. Prices for forward have now reached their usual advance upon the price for cash, which is considered a very satisfactory feature, not only as brightening the prospect, but also as creating a better feeling for the present, as before it was most discouraging to sellers to realise only cash prices for forward sales, or perhaps somewhat less.

STEEL.—This trade is not very brisk, but the receipt of some extra orders for rails has given a little more employment to some of the works.

TIN-PLATES.—There is not a large business doing, but prices remain fairly steady, though the tendency, if anything, is rather in favour of buyers.

LEAD continues firm, but without much fresh features.

SPELTER has undergone scarcely any alteration.

QUICKSILVER—A revival of the demand for export and the cheerful spirit animating the metal market, have combined to effect an advance in price yesterday to 5*l.* 17s. 6d., and to-day to 6*l.*, the market closing with an improving tendency.

The satisfactory and somewhat sudden advance in the prices of all metals this week has caused no little excitement in the MINING SHARE MARKET, and a good rise has taken place in several tin and copper mines, though the daily fluctuations have been so bewildering that it would be impossible to give a correct list of daily quotations; but the distinct tendency all throughout has been upwards, The future no one can fortell; but, considering the very low values that have prevailed of late in our home mines, through the low price of metals, and the favour shown by the general public for mere gambling in low-priced Indian gold mines, the chances are, now public attention is being drawn to tin and copper, that as these metals rise and fall, so may mining shares, and at present the tendency is certainly for a rise. The largest business has been done during the week in Dolcoath, East Pool, Wheal Grenville, Wheal Agar, Wheal Basset, West Kitty, Devon Great Consols, Wheal Crebor, East Blue Hills, Tincroft, Metal and Flow, Bratsberg, Prince of Wales, Prince Royal, West Frances, and a few others.

TIN has advanced this week to 95, but the standard for ore in Cornwall remains stationary at present. A large business has been transacted in shares, and many have advanced in price, particularly Dolcoath, Wheal Grenville, East Pool, East Blue Hills, Tincroft, West Kitty, West Frances, and others. But, as is generally the case in excited markets, quotations are very fluctuating and uncertain from hour to hour. Blue Hills are quoted ⅝ to ¾; Carn Brea, 3½ to 4. Cook's Kitchen, 9 to 10; a very important point here is near completion, and the junction of the two lodes may soon be met with under the 368. Dolcoaths have advanced to 75, 77. East Pools, 47 to 48. East Blue Hills have been largely dealt in at 30s. to 35s.; the bottom levels, it will be seen from the agents' report, have now passed through the cross-course east and west, and are again coming into tin.

Killifreth, 11s. to 13s.; New Kitty, 30s. to 35s.; Prince Royal 4s. to 6s. The report here is very favourable and shares in request: South Condurrow, 6 to 6¼; South Crofty, 7 to 7¼; South Frances, 7⅞ to 8¼; Tincroft have advanced to 6¾, 7; Trevaunance, 2¼ to 2½; West Basset, 2½ to 3; West Frances, 7½ to 8; West Godolphin, 1¼ to 1½; West Polbreen, 12s. 6d. to 15s.; Wheal Agars have advanced to 19,20; Wheal Grenville have further advanced to 16,17; Wheal Kitty (St. Agnes), ⅜ to ⅝; Wheal Metal and Flow, ¾ to 1; Wheal Peevor, ⅜ to ½; Par Tin. 1 to 1¼; Goodevere, 1 to 1¼; Phœnix 1½ to 1¾; Polbreen, 1½ to 2½; West Kittys have advanced to 8½,8¾; A dividend of 10s; per share is expected at the meeting.

COPPER has advanced to 44, being a rise of 6*l.* from the lowest point reached, and copper mines have been in better demand at increased prices. Bedford United have advanced to 10s., 12s. 6d.; Devon Great Consols, 2½ to 3. The Agent's estimate the reserve throughout the mines at 5855 tons of copper ores, and 7000 tons of mundic. Mellanear, 1 to 1¼; New West Caradon, 2s. to 4s.; Wheal Crebor have been in good demand, and have advanced from 1⅛, 1⅛ to 1¾. There is no change in mine; the bottom level continues to look promising, and the stopes to yield their usual quantity of ore: West Seton, 3½ to 4; Prince of Wales have been more enquired for at 7s. to 9s.; Ecton, 1⅛ to 1⅜.

LEAD is firmer, and lead ore is bringing a better price by 4s. to 5s. per ton. Lead mines, however, are not so active at present, as others, and quotations are mostly nominal. Vans are quoted 1½ to 1¾; the end of the cross-cut at the 150 is highly mineralised, the appearance being encouraging, and better than they were at the 120 before cutting the lode. Great Laxey, 9 to 10; Roman Gravels, 4 to 4½; The pioneer level here—the 110 south—has improved to 6 tons of ore per fathom. The sale of lead this week—100 tons—realised 792*l.* 10s., or an advance of 4s. per ton on last month's sale. Leadhills, 2½ to 2⅝; the 115 south has improved. Weardale, 1⅝ to 1⅞; D'Eresby, 1¼ to 1½ (1*l.* paid); the prospects here are improving, particularly in the Gors shaft. New Langford, 2s. to 4s.; the new agent here writes that the middle level, east of the engine-shaft, is 1½ ft. wide, 6 in. of which contains some good work for silver-lead, and in East Cornwall the strata is highly congenial for the production of mineral. South Darren, 7s. to 9s.; Standard Lead, 1½ to 1⅝.

FOREIGN MINES.—There has been a large business doing here, and the fluctuations in shares have been very great, but the most substantial rises are in copper mines. Almada are quoted ¼ to ⅜; Birdseye Creek, 1 to 1¼; Bratsberg have advanced from 9s. to 15s. 17s. 6d., and a large business has been done. Callao Bis, 10s. to 12s.; Cape Copper have risen to 28 to 30; Chile Gold, 6s. to 7s.; Colorado, 3 to 3½; Columbian Gold, 8s. to 10s.; Chontales, 3s. to 5s.; Indian Consolidated, 14s. to 15s.; Copiapo, 3½ to 3¾; Devala Moyar, 6s. to 7s.; Frontino and Bolivia, ¾ to 1; La Plata, 6s. 6d. to 7s. 6d.; Mysore, 3⅜ to 3⅝; Nundydroog, 1 to 1⅛; Organos have been fluctuating, and leave off 1 to 1¼; Orita, 30s. to 35s.; Richmond, 4⅜ to 5; Ruby, 10s. to 12s. 6d.; St. John del Rey, 75 to 80; Tolima, A, 3½ to 4½; United Mexican, 3⅛ to 3⅜; Santa Barbara, 1⅜ to 1½; the produce for September (3301 oits.) leaves an estimated profit of 74*l.* 4s. 1d. on the mine's working account. The report of the mine is more favourable. Panulcillos have advanced to 3⅛, 3⅜; Schwab's Gully, 3⅛ to 3⅜; Spitzkop, 14s. to 16s.; Russell Gold, 10s. to 12s. 6d.; Montana, 2⅞ to 3.

THE Hepburn Estate Leasehold (Kingston) has been the cause of one of the greatest excitements in the history of gold mining in the colony of Victoria. This mine had spent some 35,000*l.* in boring, shaft sinking, and the erection of one of the finest plants in the colony. The shaft bottomed on the 7th of October on 3 ft. of excellent washdirt, yielding as much as 1 dwt. of gold to the dish of dirt. The stock, which the evening before had been dull at 18s., rose rapidly by leaps and bounds, and within three hours from the opening of the market rose to 75s., and during the next day's operations rose to 5*l.* per share.

BAND and Albion Consols still hold in good favour. Good gold in the stone in No. 11 level, south of the cross-course.

MADAME Berry Mine washing magnificently, the daily yield of gold being from 150 to 200 ozs.

ENORMOUS excitement and rapid rise taking place in all the principal stocks in the neighbourhood (Kingston).

LONE Hand Mine continues its heavy yields, and its equally large dividends; another dividend of 8s. 18,000 shares has been made equal 4800*l.*

LORD Harry Mine has resumed pumping operations with its powerful machinery lately overhauled, and as the shaft is bottomed and they have been raising wash-dirt this stock is likely to soon get into favour.

AT Carn Brea the 200 and the 187 ends east of Highburrow, have improved, being now worth 20*l.* per fathom each, all in all. The mine has not looked so promising for some time.

GAS SHARES.—The principal business in these shares, according to this evening's report of Messrs. W. L. WEBB and Co., of the Stock Exchange and Finch-lane has been:—Bahia, 26; British, 44; Buenos Ayres, 14¾; Commercial, 258½; Continental Union, 41¾ to 41⅝; Gas, A, 235 to 237; ditto C, D, and E, 252; ditto H, 155 to 156; ditto J, 250; Imperial Continental, 214 to 215; Monte Video, 18⅜; Ocean, 9½; Para, 4¼ to 4⅜; Rio de Janeiro, 25 to 25½; South Metropolitan, A, 279; ditto B, 230 to 232. Gas stocks steady. Imperial Continental have nearly recovered their dividend.

Mining Notes.

LAST week's general upward tendency has increased in power and volume, and we are now able to make a distinctly favourable report. A reference to the "General Remarks" on the Metal Markets will show how strong and irresistible the rise has been and remains, and we have no doubt that apart from the natural slight relapses which are to be expected under the circumstances, that prices will continue to stiffen and permanently harden. No doubt speculation is encouraged by the near approach of the elections, upon the result of which so much depends, and in this connection the experiences of the week must be regarded as most encouraging. With a *strong* Government, whether Conservative or Liberal, present anticipation should have an exhilarating effect. Although the Servian difficulty has to be settled yet, the recent strong prononciation for European Peace by the German Government conveys tremendous weight in the discussion of the Eastern Question bugbear. Given a strong English Government, all existing influences upon commercial enterprise—amongst the first of which are exceptionally low prices and cheap money—are encouraging.

DURING the past year or two it has been a rare occurrence to witness the Cornish Mining Exchange excited. Its excitement recently has come periodically, evaporating as quickly as it took place. During the frauds on Dolcoath shareholders the Exchange was thrown into a state of heated verbosity; and, when tin assumed an upward tendency lately, there was a legitimate and important rise in the prices of mine shares, and a corresponding increase in business. During the first few months, however, the value of tin practically remained stationary, and, as a consequence, the transactions entered into were not great. This week has seen a perfect revolution in business. The Cornish Mining Exchange seemed in its palmiest days, when there was speculation worthy of the name. To put the case simply "no shares are offering." There is no disguising this fact. The sign locally is, therefore, healthy. The impression exists that prices in tin and copper, are going higher. That tin will further advance is the general idea. There may not be on the surface cogent reasons for this belief, but it is entertained all the same. The increase in price on Wednesday pleased investors, but the rise again on Thursday considerably added to the exhilaration of speculators, and, as has been suggested, holders of shares are not prepared to sell. The increase in the price of metals in London is considered a good sign in view of the fact that the elections are about to commence throughout the country, and there are those who look to a material advance on the present increase. Another jump in the Cornish standards are expected—an anticipation which is quite natural. Local shares, generally, have had an advance. On Thursday, Dolcoath's were 75; and East Pools, 48; these being the shares in which the principal improvements occurred.

MR. POLKINGHORNE, sen., purser of Phœnix United, has great hopes—or had recently—of Reciprocity in respect of copper and tin. However, in a speech delivered several days since, he expressed his belief that there was every encouragement for home copper mines to continue their efforts to keep alive until the present storm of bad prices had blown over; and, having this belief, he would urge the shareholders in South Caradon to hesitate before winding-up the company. But supposing the shareholders there had decided to cease operations for copper, he would advise them to prosecute their works for tin, of which large quantities had been found in the Caradon district. An important fact was adverted to in this respect by Mr. Polkinghorne—that the stoppage of South Caradon would seriously affect the neighbouring mines in reference to water. Everything points, however, to the present company winding-up.

MR. CHARLES W. POLKINGHORNE, of Liskeard, co-purser with his father of Phœnix United, has, on the event of his marriage, been presented with a salver by the agents of the mine.

THE contest in the Mining Division has still its incidents. Captain Josiah Thomas has come forward to controvert "some statements that had of late been made concerning the low wages of the miners, and the impression that appeared to prevail somewhat extensively that miners generally were only getting about 40s. or 50s. per month." But who have given utterance to these statements? The inference is plain; but, in justice to Mr. Conybeare and his leading supporters, it should be remembered that this cry has not been raised by them as advocating Mining Reform. The fact is, and the information we give may be relied on, that while there are many illiterate people in the Mining Division as in other constituencies, and while these illiterates may foolishly look for an increased wage in supporting Mr. Conybeare, the great fillip afforded the rumour of low wages has been the ridicule opponents of the Radical candidate have indulged in at all times and in all places in regard to his views. Just now in the Mining Division the assertion—and undoubtedly Captain Thomas is advised as he spoke—partakes of the compliment paid advanced candidates everywhere—that they are in favour of "3 acres and a cow." It is but fair to the Radical candidate that the issue of the coming election should be on distinct political lines; the personal element should not be introduced. On matters pertaining to the Mining Division that which affects the constituency in the most important degree is Mine Lease Reform—a question which includes many points. The electors will say which candidate finds most favour with themselves, and this report of any politician increasing wages is, purely and simply a matter for ridicule; it may be heard wherever one goes in the Division, but it is merely electioneering banter—it is not intended to be serious.

IT is a pleasure to find Captain Thomas saying that of 322 persons engaged on tutwork—men and boys—the wages paid last Saturday for one month amounted to 1329*l.*—an average of over 4*l.* each. However, as upwards of 80 of that number were boys, the men, he said, must have received upwards of 4*l.* 10s. per man. This rate of pay is eminently satisfactory, and as rich mines no doubt Dolcoath and East Pool stand at the top. It would be interesting after all to have statements from certain other mines. Dolcoath cannot be taken as a fair example. If mines are unable to pay their way it is found that very frequently the men eke out a bare livelihood. And this is so now. Though this is to be regretted, low wages are unavoidable, as otherwise some mines would have to cease operations. Especially was this the case before tin had its recent spurt. It should be remarked, however, that it is not the tutworkman who has most to complain of in the generality of mines. It is the surface labourer, and were a comparative statement given of the average wages and surface labourers in Cornish mines, the result would be a surprise indeed for outside people. In the St. Just district the wages are low—much behind the average of Dolcoath. The miners, however, perceive the adventurers cannot help themselves, only one mine in that large district being now in a position to make a profit.

THE telegram from the Almada and Tirito Com pany in our Mining Notes last week. "Latest assays of leaching ores—raw pulp 335 ozs. of silver per ton of 2000 lbs.," should read, 35 ozs of silv.r per ton. The error was copied from a daily paper.

THE Radical candidate for the mining constituency of Cornwall, in a speech on Saturday last, announced that as Mr. Rich (Mr. Vivian's agent) and Mr. Vivian would not withdraw a charge of Atheism against himself (Mr. Conybeare), he had instituted an action for libel against them. For a similar charge a Plymouth newspaper was recently brought into Court. The charge was withdrawn by the editor apologising, and supplying the Radical candidate with 10,000 copies of the apology for distribution Any action cannot come on now until after the General Election

MR. CONYBEARE has served a writ for libel on Mr. A. P. Vivian, his opponent in the Mining Division.

THE Rio Tinto Company announce that at the third half-yearly drawing of their Second Five per Cent. Bonds, to be held on the 1st prox., bonds amounting to 7680*l.* will be drawn to be paid off at par on January 1.

A FIRE occurred in the Bull Domingo Mine, at Silver Cliff, Colorado, on Saturday last, owing to an explosion of gunpowder. The shaft was burnt, and 10 miners were killed.

THE directors of the Isle of Man Mining Company (Foxdale Mines) at their quarterly meeting, on the 17th inst., declared an interim dividend of 2s. 6d. per share, or 1750*l.*, carrying over a balance of 1879*l.* 3s. 1d. to credit. The profit for the quarter, ending 30th September, was 3364*l.* 5s. 5d., and for the nine months, to same date, 10,379*l.* 19s. 4d. The mines are looking very well.

BOTALLACK three-monthly account was held on Wednesday. It was not so satisfactory as had been wished at the beginning of the quarter. A loss was shown of 120*l.* Compared with many other mines this was small, but it is time the shareholders here were rewarded for their outlay. But for an accident to the stamps a larger quantity of tin would have been returned. On the whole, however, the mine does not look so well, prospectively, as it has done in the past.

IT is reported that the 165 end east in Wheal Grenville has become richer. This end is being driven under a contract for 100 fathoms. The 140 west, and the winze, sinking under the 90, are also looking well.

A MEETING of West Kitty will be held at 37, Walbrook, on Wednesday next; meetings of Polberro and Trevaunance shareholders will also be held on the same day at the same place.

A TELEGRAM received from J. B. Finlason, managing director of St. Augustine's Diamond Mine at Kimberley, dated Nov. 16, says:—Are finding diamonds in soft blue, through which main shaft is being sunk.

THE committee representing the Mysore Reefs Gold Mining Company (Limited) have issued the following circular:—In December last, as you are aware, your committee entered into a provisional agreement with the official liquidator of the Mysore Reefs Company with a view to the resuscitation of the company, and meetings of the shareholders and creditors were held and the scheme proposed was approved. The number of shares agreed to be subscribed was however insufficient, and the scheme fell through. We did not, however, abandon our purpose, and have given much time and labour to the matter, with the result that we now feel certain that our efforts will be crowned with success. We have again entered into a provisional agreement with the liquidator, and the Court has directed meetings of the shareholders and creditors to be called. The terms of the proposed reconstruction are set forth in the liquidator's notice convening the meeting. Recent reports from the manager of the Mysore Company show that at various points in the mine the lode is marvellously rich, and that the assay value of the stope in the bottom of the 236 has improved, and at present shows a value of 13 tons of ore to the fathom, assaying 6 ozs. 10 dwts. 16 grs. per ton. What it may be at greater depth it is impossible to surmise, but as there is no doubt of the lode being a true fissure vein, results eclipsing those of the farfamed El Callao may not unnaturally be looked for. The Mysore reefs property is considered by many to show evidence of old workings at least equal to those of the Mysore Gold Company, but at the time of the passing of the company into liquidation no shaft upon it had reached the depth of 100 ft., at which depth the results of the Mysore workings were (if any) insignificant. The following are shortly the terms of the proposed sale:—

(1). The payment in full and taking over by the new company of the debts and liabilities of the present company, including the costs, charges, and expenses of, and incidental to, the liquidation thereof.

(2). The said intended company to offer its shares in the first instance to all the shareholders in the above-named company, who have paid up or may pay up in full on their shares, or their nominees, *pro rata*, according to their respective holdings. Such shares to be so applied for within a period to be fixed by the directors of the new company, and to have the sum of 15s. per share credited as paid thereon, and the balance of 5s. payable upon such shares to be paid as follows: 1s. per share upon application, 1s. upon allotment, and the balance by calls of not more than 1s. per share, as may be determined upon by the directors of the new company, with an interval of not less than three months between the times fixed for payment of each call. The new company to take all necessary steps to register an agreement for the issue of such shares with the register of joint stock companies.

(3). The new company to be incorporated within a week after the said agreement has been approved of by the Judge, and to carry out the terms aforesaid within three months of such approval.

IT is to be hoped that the shareholders of Devon Friendship will recognise the necessity of prompt and decisive action, and either before or at the meeting to be held on Wednesday next, subscribe the 6000*l.* which is required. The money is required partly to meet the liabilities of the company, and the remaining portion is to defray the cost of erecting efficient machinery for unwatering the old mine to the 60 fathom level, and putting the mine in fork at that depth. It is estimated that the mine could be drained to the 60, and the first kibble of stuff drawn up within six months from commencing operations. The property is believed to be a most valuable one; and certainly it would be a pity that the shareholders should let the property pass from their hands, and allow others to realise the enormous resources which are reported to be lying broken underground, only requiring machinery to raise and render them marketable. It is proposed to issue not less than 12,000 shares at a discount of 10s. per share. It may be pointed out that, in view of the brightening prospects in mining business, the present is a particularly opportune time for a vigorous prosecution of the mine.

THE directors of the United Mexican Mining Company have received the following telegram:—The excess of returns over the outlay on the mine of San Cayetano de la Ovejera for the week ending November 14, 1885, is $5442; Monica $706.

A TELEGRAM has been received by the directors of the Richmond Consolidated Mining Company from the mine at Eureka, Nevada, as follows:—Week's run (one furnace) $16,000 from 280 tons of ore; refinery $16,000.

ON Thursday, 1353 tons of copper were sold at Truro, containing 84 tons 4 cwts. fine, realising 2905*l.*; average, 43s.; produce, 6¼; standard, 78*l.* 14s., an advance of 5s. Devon Great Consols sold 750 tons, 864*l.*; Glasgow Caradon, 230, 909*l.*; Gunnislake, 88, 315*l.*; Bedford United, 73, 237*l.*; Gawton 71, 37*l.*; South Caradon, 64, 210*l.*: Emily Copper, 35, 186*l.*; Mid-Devon, 26, 100*l.*; West Caradon, 16, 46*l.*

AT a special meeting of shareholders of the Bratsberg Copper Company, held on Thursday, it was stated by the committee, appointed at the last meeting, that three of the directors have retired, but the other two directors have shown a desire to retain their seats. Under these circumstances the meeting was further adjourned to the 17th of December next. It seems that there are certain gentlemen who are willing to advance money to carry on the mine on condition that all the present directors retire; and it is to be hoped that before the adjourned meeting the two gentlemen who have declined to retire will, seeing they have hitherto done what they believe to be best for the company, consent to some arrangement by which operations can be vigorously carried on at the mine.

THE North Mexican Silver Mining Company (Limited) have received the following telegram from the Hon. James Hall Bell, one of the directors, who, at the request of the board, is visiting the mines:—I have examined everything thoroughly at Cusihuriachic. The work on mill and mine is going on well. Mill will be completed February 1. Best mill in Mexico. There will be plenty of ore if necessary work is continued on the mines.

LA PLATA Mining and Smelting Company returns for first half of November, 1885:—Ore received from the company's mine, 225 tons; total ore received, 1700 tons; ore smelted, 2000 tons; bullion produced, 200 tons; silver produced, 45,000 ozs.

THE prospectus of the New Lisbon-Berlyn (Transvaal) Gold Fields (Limited), which has been formed to acquire the Lisbon and Berlyn Estates, with the machinery and plant of every kind owned by the Old Lisbon-Berlyn Company, including 60 stamps appears on another page. A 10-stamp mill is also erected, and ready for work. The directors Messrs. Albert Grant, Alfred Pegler, Hugh Gwynne Owen, Hon. David Erskine, Albert Macklin, and Andrew Maclean, invite subscriptions for 96,052 shares of 1*l.* each at the price of 4s. per share.

THE sharp rise in the price of copper is the special feature of the week, apart from the generally stronger appearance all round. The revival in copper is ascribed to two principal causes.

The *Daily Telegraph* attributes it to the fact that "experiments recently made in Germany with a particular process for coppering ironclads has been succesful, thus holding out prospects of a greatly increased demand for that metal." Our readers will recollect that sometime back we gave particulars of an iron ship that had been successfully coated with copper plates by a process invented by Messrs. Vivian and Co., of Swansea. The vessel started on a long voyage, but since we have not heard more about her. The rise in price is also attributed to another cause that will create an increased demand for copper—that our Postal Telegraph authorities are following in the wake of the American Government, and propose to substitute copper for iron wires. It has long been known that copper is a better conductor of electricity than iron, but hitherto the high price of the former precluded its general use. A copper wire has lately been stretched from London to Newcastle with great success as to additional speed in the transmission of messages. The increase in the number of telegrams under the reduced rate requires either additional iron wires or their replacement with copper. The Americans, who are considerably ahead of this country in electrical science, have been engaged for some time in replacing all their iron wires with copper, and no doubt the same plan will be adopted in this and other countries. Owners of copper mines may, therefore, take heart, and look forward to a still further improvement in the price of this metal.

RIO TINTO shares show a rise of 3*l.* 7s. 6d. on the week, Cape Copper 3*l.*, Mason and Barry 2*l.* 13s. 9d., and other shares a substantial advance.

AT the half-yearly general meeting of the Devon Great Consols Company (Limited), to be held on Wednesday, the directors will present to the shareholders a statement of receipts and expenditure from the 30th April to the 31st October, 1885, showing that during this period 4724 tons 16 cwts. and 3 qrs. of copper ores have been sold, realising 6228*l.* 18s. 11d., or an average price of 1*l.* 6s. 3d. per ton, being the lowest ever obtained by this company. In the corresponding period of the previous year (April to October, 1884) the sales of copper ores (4853 tons) realised 8345*l.* The Arsenical Reduction Works show that the receipts amount to 8400*l.*, as against 12,000*l.* for the corresponding period of last year. The receipts for copper ores and arsenic embrace a period of six months, while the expenditure covered a period of seven months (28 weeks) owing to there being thirteen months pay days (of four weeks) in the year. The accounts now submitted show a credit balance of 1384*l.* 5s. 3d. The royalty now due to the Duke of Bedford is 1727*l.* 2s. 3d. Application has been made to his Grace for his favourable consideration respecting this liability, and also as to the royalty for the future, during the continuance of the unprecedented depression in the price of copper. The serious nature of the reduction in the value of the company's copper ore and arsenic, is sufficiently indicated in the following statement, showing the receipts for the last two years. During the six months from October, 1883, to March, 1884, 5215 tons of ore were sold, which realised 10,219*l.* 8s. 11d., or 1*l.* 19s. 2d. per ton. From April to September, 1884, 4853½ tons realised 8343*l.* 15s. 9d., or 1*l.* 14s. 4d. per ton. From October, 1884, to March, 1885, 5084 tons 20 cwts. realised 7503*l.* 18s. 11d., or 1*l.* 9s. per ton. From April, 1885, to September, 1885, 4724 tons 16 cwts. 3 qrs. realised 6228*l.* 18s. 11d., or 1*l.* 6s. 3d. per ton. The aggregate sales of ore for 1883-4 thus realised 18,563*l.* 4s. 8d., while the ore sales for 1884-5 produced 13,732*l.* 17s. 10d. only, showing a depreciation in value of 4830*l.* 6s. 10d. The full significance of this depreciation is shown by a reference to the price obtained on the 25th October, 1883, which was 2*l.* 1s. 3d. per ton, while during the last month of the period embraced in the accounts now submitted the price was only 1*l.* 0s. 10d. per ton. There has also been a considerable falling off in the arsenic contracts. Thus the arsenic sold in 1884 realised 24,000*l.*, while for 1885 it is only 19,600*l.*, showing a difference of 4400*l.* Considering these results, than which nothing could more markedly emphasise the severe mining depression which has existed during the past few years, the directors and local management have experienced no little anxiety in endeavouring to overcome the difficulties of the situation, and they point with satisfaction to the reduction of the expenditure by about 5000*l.*, which has been effected during the past half-year, and that they have thus been able to keep pace with the times. The shareholders are, doubtless, aware that most of the copper mines in Cornwall and Devon have now been abandoned, or operations have been suspended. This has also been the experience to a large extent in mining enterprise abroad, as it has been found to be impossible to meet the expenditure necessary for mining operations while copper remains at its present price—viz., 39*l.* to 40*l.* per ton, once at 150*l.* to 160*l.* per ton. Regarding the future price of copper, the directors would remark that, while diverse opinions are being expressed, it is obvious that until the present heavy stocks of copper and foreign productions are lessened, no very important advance in price can be expected.

STOCK AND SHARE LIST.

BRITISH DIVIDEND MINES

Shares.		Paid.	Last wk.	Clos. pr.	Total divs.	Pr	Last pd.
2000	Bedford Unit.,* c, Tavis. (£1 liab.)	0 14 0	¼	¼ ¾	0 1 0	0 2	0...Nov. 1884
16000	Carn Brea, c, t, Illogan†	15 5 5	3	3½ 4	52 11 8	0 10	0...Nov. 1881
12242	Devon Gt. Consols, c, a, Tavistock*†	1 0 0	2	2¼ 3	118 7 0	0 6	9...Dec. 1880
4700	Dolcoath, c, t, Camborne	10 14 10	74	75 77	45 14 0	1 10	0...Oct. 1885
6400	East Pool, t, c, Illogan	0 9 9	47	47 48	45 11 6	1 5	0...Oct. 1885
12000	Great Holway,* l, Flintshire	5 0 0	1½	1½ 1½	0 12 0	0 7	6...Sept. 1883
19800	Great Laxey, l, Isle of Man*†	4 0 0	9	9 10	30 18 0	0 5	0...Oct. 1885
6400	Green Hurth, l, Durham*	0 6 0	4½	4¼ 4½	5 1 0	0 5	0...Oct. 1885
14000	Isle of Man, l, Isle of Man*	5 0 0	—	5 5½	83 12 6	0 2	6...Nov. 1884
6000	Killifreth, t, Chacewater§	4 13 6	2¾	2¼ 2¾	13 0 14	0 2	6...Nov. 1885
10000	Leadhills,* l, Lanarkshire	6 0 0	2¾	2¼ 2½	1 10 6	0 2	6...Nov. 1885
2500	Levant, c, t, St. Just	11 5 0	—	3	2 6	0 3	6...Sept. 1885
400	Lisburne,* l, Cardiganshire	18 15 0	—	9	615 10 0	0 10	6...May 1882
10000	Mellanear, c, Hayle*	2 0 0	1	1	4 9	0 2	6...Apr. 1885
9000	Minera Mining Co., l, Wrexham*	5 0 0	7	7	69 14 2	0 0	6...July 1885
20000	Mining Co. of Ireland, ci, c, l*	7 0 0	1½	1 1½	24 1 0	0 0	2...Aug. 1884
1829	North Hendre, l, Wales	2 10 0	—	3	28 3 0	0 2	6...Aug. 1884
8146	Ditto	1 7 6	—	1	24 1 0	0 2	6...Nov. 1882
12000	Phœnix United, t, c, Linkinhorne§	6 6 6	1¾	1¼ 1¾	3 18 0	0 2	6...Nov. 1882
12000	Roman Gravels, l, Salop*	7 10 0	4	4 4½	9 16 0	0 2	6...Apr. 1883
6123	South Condurrow, t, c, Camborne†	7 5 7	6	6 6½	12 1 6	0 5	0...Aug. 1885
9000	South Darren, l, Cardigan*	1 10 0	9s.	7s. 9s.	1 4 0	0 2	0...Apr. 1880
16000	Tincroft, c, t, Pool, Illogan†§	14 18 6	5¼	5 5¼	4 0 0	0 2	0...June 1885
6000	West Basset, c, Illogan†§	8 3 4	2½	2½ 3	28 3 6	0 5	0...Dec. 1881
4000	West Kitty, t, St. Agnes	0 12 0	8¼	8¼ 8¾	4 18 0	0 2	6...July 1885
6000	Wheal Agar, t, Illogan	19 6 0	20½	19 20	2 12 0	0 10	0...July 1885
6144	Wheal Basset, c, Illogan, l	8 0 0	7¾	7¼ 7¾	0 2 6	0 2	6...Nov. 1885
12000	Wheal Crebor, c, Tavistock	2 4 0	1¾	1½ 1¾	1 1 3	0 0	2...July 1885
1024	Wheal Eliza Consols, t, St. Austell	18 0 0	—	59 10	0 0	0 10	0...Aug. 1884
6000	Wheal Grenville, t, Camborne	15 0 0	—	16 16	17 3 0	0 6	6...Nov. 1885
4295	Wheal Kitty, t, St. Agnes§	6 12 0	⅜	⅝ ⅞	7s. 12 18 6	0 1	6...Sept. 1885
3000	Wheal Peevor, t, Redruth§	1 12 0	7/8	7/8	2 9 3	6... 10	0...Jan. 1881
							0...Aug. 1865

FOREIGN DIVIDEND MINES.

35000	Alamillos, l, Spain*†	2 0 0	1⅝	1½ 1⅝	2 19 5	0 1	6...Sept. 1885
230000	Almada and Tirito Consol.,* †	1 0 0	½	¾ ⅞	0 6 3	0 1	0...May 1876
20000	Australian, c, South Australia†	7 7 6	2	1½ 2	13 0 0	0 2	0...July 1885
15000	Birdseye Creek, g, California*	4 0 0	1⅛	1 1⅛	1 11 0	0 2	0...June 1885
30000	Bratsberg,* c, Norway†	2 0 0	⅝	¾ ⅞	0 4 4	4½ 0	1 2¼ Mar. 1884
30000	California,* g, Colorado	1 0 0	3/6	2s. 6	3s 6	0 3	0...Aug. 1884
20000	Cape Copper Mining,*† South Africa	8 0 0	26	28	30	0 10	0...Sept. 1885
65000	Colorado United, s-l Colorado*†	5 0 0	3	3½ 3⅝	3⅜ 2	14 6	0 1 0...May 1883
60000	Copiapo, c, Chili* (£4 shares)†	3 10 0	49	48 50	2 10 9	0 1	0...Sept. 1885
32200	El Callao, g, Venezuela	4 0 0	48½	49 50	36 19 4	0 3	4...July 1885
70000	English & Australian,*† c, S. Aust.	2 10 0	—	—	3 2 9	0 1	0...Mar. 1884
2000	Eng.-Aus., g, Vict.,* pref. (20000 o.)	1 0 0	—	—	3 2 9	0 1	0...Mar. 1884
25000	Fortuna, l, Spain*†	2 0 0	3¼	3¼ 3¾	0 3 8	0 3	8...Apr. 1882
12000	Frontino & Bolivia, g, New Gran.*†	2 0 0	13/9	⅜ 1	9 0 4	0 3	3...Oct. 1885
400000	La Plata, s-l, Leadville†	1 0 0	6/6	6/6 7/6	1 12 0	0 1	0...Dec. 1883
500000	La Trinidad, *t, Sonora, Mexico	5 0 0	4	4¼ 4¾	6 6 0	0 0	7½ Oct. 1882
15000	Linares, l, Spain*†	3 0 0	4¼	4¼ 4½	20 0 4	0 3	6...Oct. 1885
20000	Marbella Iron Ore,* c, Spain	10 0 0	2¼	1¾ 2¼	0 10 0	0 0	5 0...Aug. 1885
135164	Mason & Barry,* c, Portugal	10 0 0	2¼	1¾ 2¼	20 0 4	0 3	6...Oct. 1885
233005	Montana,* g., U.S.A.	1 0 0	7½	9½ 10	0 10 0	0 0	10 0...June 1882
60000	New Albion, g, Nova Scotia	2 0 0	2⅝	2¾ 3	4 7 0	0 4	0...Oct. 1885
120000	New Hoover Hill, g, North Carolina	1 0 0	1¾	1¾ 1¾	0 2 2	0 1	6...Oct. 1885
125000	Oxford, g, Nova Scotia	0 10 0	½	⅝ ⅝	0 1 0	0 1	0...Sept. 1885
80659	Quebrada Rail., Land, & Cop. Venezuel	10 0 0	⅛	⅛ ⅛	0 1 3½	0 0	1½ Mar. 1884
50000	Panuelillo, c, Chili*†	0 4 0	3/6	¼ 3/6	0 1 3	6 per cent.	... 1882
25000	Pitangui,* g, Brazil (in. 6000 £1 pd).	0 18 0	⅜	½ ⅝	2 9...	0 2	0...May 1884
14000	Pontgibaud, s-l, France†	2 0 0	2¼	3½ 3¾	2 2 9	0 0	2 0...Sept. 1880
100000	Port Phillip, g, Clunes*† (£15s. sh.)	1 0 0	5	4 5	30 3 1	0 11	3...Dec. 1883
54000	Richmond Consol., s, Nevada*†	5 0 0	1/16	— 1/16	1 14 2	0 0	10...Feb. 1881
25000	Rio Tinto,* c, Mortgage Bds., Huelva.	5 0 0	—	—	0 3	0 0	1 0...July 1882
325000	Ditto, shares	10 0 0	4¼	4¼ 5	15 1 6	0 0	5 0...Nov. 1884
12000	Ditto, 2nd Mortgage Bonds	100 0 0	99	97 99	5 per cent.		...Apr. 1885
60000	Santa Barbara,* g, Brazil	10 0 0	8⅞	8½ 8⅞	5 2 0	0 0	6 0...Oct. 1885
122000	Schwab Gully,*d, Kimberley	100 0 0	88	86 88	5 per cent.		
120000	Scottish-Australian Mining Co.*†	0 10 0	1¼	1⅛ 1¼	0 12 9	0 1	0...May 1882
60000	Ditto, New	1 0 0	3	2¾ 3¼	6 10 6	0 10	0...Jan. 1885
122500	Sierra Buttes, g, California*†	2 0 0	1	1 1½	20 p. cent.	0 1	0...May 1885
14062	Ditto, Plumas Eureka	0 10 0	—	⅝ ⅞	2 8 0	0 0	6...Oct. 1885
125000	Silver Queen Untd., *s, Sonora, Mex.	2 0 0	2⅛	2 2⅛	3 6 6	0 1	6...Oct. 1885
253000	St. John del Rey*† (£5 Stock and multiple dealt in)	2 0 0	7/8	7/8	0 2 0	0 0	2 0...Aug. 1885
160000	Tambracherry,* g, Wynaad	75	80	5 p.c. for half-year, June 1882			
625000	Tharsis,* c, sul., Spain (587330 issued)†	2 8 0	⅛	⅛ 0	0 0	6 0...Aug. 1882	
14000	Tolima,* g, s, Colombia (A shares)†	5 0 0	4½	5 5½	7 6 6	0 8	0...May 1885
6000	Ditto (B shares)	5 0 0	3½	3½ 4½	6 2 2	0 5	0...Jan. 1885
125175	United Mexican,*† s, Mexico	9 17 6	2¼	2 2½	1 5 3	0 5	0...Jan. 1885
25000	Victoria* (London), g, Australia	1 0 0	3/—	2/ 3/	0 7 6	0 2	6...Aug. 1885
60000	Violeta *, g, Spain	5 0 0	1⅛	1¼ 1½	0 13 10	0 0	8...Feb. 1881
15000	Western Andes, s, Colombia	1 0 0	4½	4 4½	0 1 6	0 1	6...Sept. 1885
2100	W. Prussian (3500 pref. sh. £10 pd.)	10 0 0	—	—	4 16 3	0 10	6...Aug. 1884
54600	Yorke Pen., c, South Aust. Pref.†	1 0 0	⅛	1/16 3/16	4 2 0	0 0	8...Apr. 1881
					0 3 0	0 0	3 0...May 1882

§ Have made calls since last dividend was paid.

NON-DIVIDEND BRITISH MINES.

Shares.		Paid.	Last wk.	Clos. p
12000	Anderton, t, c, l, Devonshire	0 6 0	1⅛	4/ 5/
12000	Assheton, l, Carnarvonshire*	5 0 0	—	
3200	Blue Hills *, c, St. Agnes§			
10000	Brada,* l, Isle of Man	4 18 6	⅞	¾ ⅞
30000	British,* s-l, bl, Wrexham	1 0 0	—	
20000	British Manganese Company*	1 0 0	—	
10000	Burnhope,* l, Edmondbyers	0 10 0	2¼	1¾ 2¼
50000	Cambrian,* l, c, Cardigan	2 0 0	—	
50000	Carn Camborne,* t, c, Camborne	1 0 0	3/8	⅜ ⅜
37500	Carnarvonshire Cons.,*l, Llanrwst.	2 0 0	1/16	1/16 3/16
6400	Cashwell,* l, Cumberland†	2 19 0	1¼	1¼ 1¾
10000	Central Foxdale,* l, Isle of Man	0 17 6	—	
300000	Clifford Amalgamated	0 17 6	—	
25000	Coed-y-Fedw & Pant-y-Buarth,* l	1 0 0	1¼	1½ 1¾
2450	Cook's Kitchen, t, Illogan†	1 0 0	¾	¾ 1
32007	Craven Moor Uni.,* l. Fateley Bdge	43 0 9	10	½ ¾
50000	Creigiog,* l, bl, Denbighshire	1 0 0	10/—	9½ 10
36400	Crook Burn,* l, Cumberland	0 17 0	¾	¾ ¾
55000	Cumberland Lead	1 0 0	1½	1 1¼
12000	D'Eresby,* l, bl, Llanrwst. £1 share	1 0 0	1⅛	1¼ 1½
60000	Devon Friendship,* c, ars, Tavistock	1 0 0	1/—	6d. 1/
50000	Drakewalls,* t, c Calstock	0 16 0	2/—	2/6 3/6
50000	Duchy Peru,* bl, l, s, Cornwall	1 0 0	1½	⅞ 1⅛
12000	East Blue Hills, t, St. Agnes	0 7 0	1¾	1⅛ 1¼
6000	East Botallack, t, St. Just	1 2 6	—	
6144	East Caradon, c, St. Cleer†	5 7 6	—	
15000	East Devon Cons.,* c, Buckfastigh.	2 0 0	⅜	⅛ 5/8
6000	East Tregembo, t, c, Marazion	0 6 5	⅛	⅛ ⅜
2048	East Wheal Lovell, t, Helston	0 3 6	⅜	¼ ⅜
25000	Ecton,* c, Wetton	1 0 0	1¼	1⅛ 1⅜
12500	Frongoch,* l, Cardgn (11000 sh. iss.)	2 0 0	—	⅛ ¼
12000	Gawton,* c, Tavistock	2 0 0	⅜	¼ ⅜
40000	Glasg. Car.,c*(30000sh. £1 pd., 10000 15s. p i.)		⅜	⅛ ¼
30000	Gobbett,* t, Devon	1 0 0	—	
10000	Goddards,* l, o, Carnarvon	1 0 0	—	
32000	Goginan,* l, Cardiganshire	1 0 0	—	
25000	Goodevere, t, St. Cleer	1 0 0	⅜	¼ ⅜
6000	Great West Chiverton, t, St. Agnes.	0 6 6	1¼	1 1¼
50000	Great W. Shepherds* t, Cornwall	2 0 0	⅛	⅜ ⅛
20000	Grogwinion, l, Cardigan*	1 0 0	—	
10000	Gwern-y-Mynydd,* s-l, Flint(pref.)	2 0 0	—	
9830	Gunnislake (Clitters) t, c, l	4 0 0	1½	⅞ 1⅛
8400	Hardshins, l, Westmore. (10s. sh.)	2 4 0	⅜	⅛ ⅜
15000	Holywell District, *l, Flintshire	0 7 6	1	½ 1
15000	Lady Ann,* s-l, Llanarmon	1 0 0	1	¾ 1
15000	Llandegla,* l, Wales	1 0 0	—	
5120	Lovell, t, Wendron	1 0 0	—	
9000	Marke Valley, c, Linkinhorne†	2 1 0	⅜	⅛ ⅜
20000	Mostyn Consols,* s-l, Flint	8 9 0	3/—	2/ 3/
6144	Mount Carbis, t, c, Redruth	1 0 0	—	
12000	New Caradon, c, St. Cleer	1 19 0	2½	2 2½
2400	New Cook's Kitchen, t, Illogan	0 8 3	3/—	2/ 3/
8000	New Dolcoath, t, c, Camborne*	10 18 6	½	¼ ½
10000	New Holmbush,* t, c, Callington	3 0 0	—	
6000	New Kitty, t, St. Agnes	4 0 0	—	
25000	New Langford, s, c, Callington	1 15 0	1¾	1½ 1¾
15000	New Redmoor,* var, Callington	0 5 0	2s.	2s. 4s.
17500	New Terras,* t, St. Austell	1 0 0	—	
3500	New Tincroft, t, Lelant	2 0 0	2½	2 2½
12000	New Trumpet,* t, Wendron	6 0 0	—	
30000	New Van Cons. & Glyn,* c,	1 0 0	1	¾ 1
12000	New West Caradon, c, Liskeard	7 0 0	—	
3000	New Wheal Peevor, t, Redruth	0 9 3	2/6	2/ 4/
12000	North Blue Hills, t, St. Agnes	0 2 6	2s.	1s. 2s.
5328	North Busy, t, c, Scorrier †	2 6 8	2s.	1s. 2s.
10000	N. D'Eresby Mount.,* l, bl, Carnarv.	1 0 0	—	
25000	North Goginan,* l, Cardiganshire	1 0 0	—	
6400	North Green Hurth,*	1 0 0	1	½ 1

NON-DIVIDEND MINES—continued.

Shares.		Paid.	Last wk.	Clos. pr.
5000	North Grogwinion,* s-l, Cardigshr.	1 0 0	¼	¼
2000	North Levant, t, c, St. Just	15 2 6	—	
50000	North Molton,* c, mn., t, Devon	1 0 0	—	
65000	North Treskerby,* c, St. Agnes	1 0 0	—	
30000	Par.* t, St. Austell	1 0 0	1⅛	1 1⅛
6000	Pedn-an-dres, t, Redruth	4 16 0	1⅛	1 1⅛
20000	Penegarreg, l, Carmarthenshire	1 0 0	—	
10000	Polberro, t, St. Agnes	0 4 0	2⅛	1⅞ 2⅛
12000	Polcrebo, t, Crowan	0 15 9	2	1⅛ 2⅛
10000	Port Nigel Syn,* s-l, Carnar. (4000 is.)	0 15 0	—	
18000	Pr. Patrick,* s-l, (als. 12000 pf. 10 p.c.)	1 0 0	—	
12000	Prince of Wales, s, c, t, Calstock	1 7 6	3s.	7/ 9/
12000	Prince Royal	0 2 6	6/—	4/ 6/
36000	Russell United,* c, Tavistock	0 9 6	⅛	¼ 3/8
30000	Silver Hill,* Callington	1 0 0	1/16	5/16 7/16
50000	Sinclair,* l, bl, Whitford	1 0 0	⅛	¼ ⅛
40000	Sortridge,* c, Horrabridge	1 0 0	—	
50000	South Caradon,* c, St. Cleer†	1 0 0	⅜	¼ ⅜
6000	South Carbis, t, c, Redruth	0 10 0	¾	⅛ ⅜
6000	South Kitty, t, St. Agnes	0 10 0	1½	1¼ 1½
6000	South Penstruthal, t, c, Gwennap	0 10 0	⅜	⅛ ⅜
30000	So. Phœnix & Caradon,* t, c, Linkinhn.	4 2 6	⅛	⅜
6000	South Tolcarne, t, c, Camborne	1 0 0	⅛	⅛
2043	South Wheal Crofty, c, Illogan	5 11 6	⅛	⅛
4500	South Wheal Frances, t, Illogan†	9 0 6	7½	7
30000	Standard,* l, bl., Llanrwst	11 1 0	4	7½ 7¾
40000	Tamar, s-l, Bearalston*	1 0 0	1¼	1¼ 1¼
6000	Tindene	3 3 0	—	
6000	Tolgullow United, St. Day		2½	2¼ 2½
12000	Trebartha Lemarne, t, Northill	0 11 6	2¼	1¾ 2¼
50000	Tregontrees and Old Pendown Con..	1 0 0	⅛	⅜ ⅛
8000	Trevaunance, t, St. Agnes	0 15 0	2⅜	2⅛ 2½
1000	Vaughan,* l, Cardiganshire	10 0 0	—	
30000	Van,* l, Llanidloes	0 10 0	1¾	1⅝ 1¾
50000	Weardale,* l, Northumber. (4l. share)	1 5 0	1⅜	1⅛ 1⅜
12000	West Caradon, c, St. Cleer	0 13 6	2/6	1/6 2/6
30000	West Cornwall,* t, Cornwall	1 0 0	1⅛	1 1⅛
10240	West Devon Consols, c, Calstock	1 2 0	¼	⅛ ⅛
10000	West Godolphin, t, c, Breage	1 5 6	1¼	1¼ 1⅛
12000	West Gonamena, c, St. Cleer	0 1 0	—	
3000	West Mary Ann, l, Menheniot	1 18 0	¼	⅛ ¼
12000	West Phœnix, t, Linkinhorne	1 10 6	¼	⅛ ¼
6000	West Polbreen, t, c, St. Agnes	0 12 0	¼	⅛ ¼
6144	West Wheal Frances, t, Illogan†	14 10 1	8⅛	7¼ 8
3000	West Wheal Peevor, t, Redruth	5 0 0	⅛	⅜ ⅛
2400	West Wheal Seton, c, Camborne§	22 0 0	4½	3½ 4
4000	Wheal Benny, t, c, Latchley	0 0	7⅛	7 7⅛
50000	Wheal Castle,* c, t, St. Just	0 0	1	¾ 1
12000	Wheal Coates, t, St. Agnes	0 12 0	2/	1/ 2/
2585	W. Comf., & No. Tres., t, c, Gwennap	2 2 0	⅛	⅛ ⅛
50000	Wheal Elizabeth,* t, Cornwall	1 0 0	—	
12000	Wheal Lusky, t, Callington	0 3 9	3/16	¼ 3/16
12000	Wheal Metal and Flow, t, Breage	0 3 6	⅞	¾ 1
2000	Wheal Owles, t, St. Just†	8 3 0	—	
30000	Wh. Silver & Lantegloe,* s-l, Cameifd.	1 0 0	5/8	⅜ 5/8
6000	Wheal Sisters, t, Lelant	4 17 6	—	
21886	Wye Valley, l, Montgomery.*	1 0 0	—	
60000	Yeoland Consols,* t, Devonshire	1 0 0	⅛	⅛
65003	Yorkshire Lead Mines, l	1 0 0	12/6	10/ 12/6
4000	Ystwith,* l, Cardigan	1 0 0	—	

bl, blende; c, copper; g, gold; l, lead; s, silver; sl, slate. s-l, silver-lead; t, tin; z, zinc; i, iron; a, arsenic; d, diamond. *Limited Liability Companies; † quoted on the Stock Exchange. ‡ have paid dividends.

NON-DIVIDEND FOREIGN MINES.

Shares.		Paid.	Clos. pr.
150000	Akankoo,* g, Gold Cat. (100000 iss.)	1 0 0	1/16 1/8
54889	Anglo-African,* d, Kimberley,†	10 0 0	¾ 1¼
132000	Asia Minor,* s-l, Lidjessy, Sivas	0 17 6	1/8 ¼
400000	Balkis Consolidated, g, Transvaal	0 5 0	6d. 9d.
28000	Belt,* c, Lake Sup., (22000 £4 paid)	5 0 0	
240000	British Australian,* g, N. So. Wales	1 0 0	
10000	Buena Ventura,* l, Spain (fy.pd.)	2 0 0	
120000	Callao Bis,* g, Venezuela	1 0 0	1/8 ⅛
42500	Canadian, c, sul,* Canada†	2 0 0	
20000	Chile,* g, Venezuela (New)	1 0 0	6/ 7/
125000	Chontales, g, s, Nicar.*† (108749 iss)	1 0 0	1/8 ¼
75000	Colombian Hydraulic, g, Colombia	1 0 0	8/ 10/
120000	Devala Moyar,* g, Wynaad†	1 0 0	6/ 7/
75000	Devala Provident,* g, Wynaad†	0 10 0	
25000	Don Pedro North del Rey*	1 0 0	⅛ ¼
14000	Eberhardt, s, Nevada*†	1 0 0	1/ 1/6
40000	Georgia,* g, United States	1 0 0	
60000	Gold Coast,* g, Wassau	1 0 0	
40000	Gold Hill,* g, North Carolina	1 0 0	
150000	Indian Consolidated,* g	1 0 0	5/8 ¾
200000	Ind. Glenrock,* g, Wynaad†	1 0 0	¼ ⅜
120000	Iron Gate* cl. chr. Hungary	1 0 0	
100000	I.X.L., g, s, California*	1 0 0	1/16 3/16
60000	Javali, g, Nicaragua*	1 0 0	2/6 3/
170000	Kohinoor,* s, Colorado	1 0 0	1/ 1/8
500000	Llabon-Berlyn,* g, South Africa	1 0 0	2/ 3/
38000	London and California, g*†‡	2 0 0	
135000	Mysore,* g, India†	1 0 0	3⅜ 3⅝
75000	New Callao,* g, Venezuela	1 0 0	1/9 2/3
78500	New Emma,* s, Utah*	10 0 0	⅛ ⅜
200030	New Potosi,* g, Venezuela†	1 0 0	3/9 6/3
180000	North Mexican, s, Mexico	1 0 0	
2000	Do. debentures do.	20 0 0	
2000	Do. Preference do.	20 0 0	
120000	Nundydroog,* g, Mysore	1 0 0	1 1¼
5000	Olathe,* s-l, Leadville, Colorado	1 0 0	
25000	Ooregum,* g, Mysore	1 0 0	14/ 15/
20000	Do. Preference 10 p. c.	0 18 0	
12000	Oregon g, U.S. (4000 prf. sh.)	0 2 6	
15000	Organos,* g, Colombia	1 0 0	1⅛
20000	Orita,* g, Colombia	1 0 0	1½ 1¾
52500	Oscar,* g, Colombia	1 0 0	6/ 7/
12500	Do. Preference	0 7 6	
80000	Ouro Preto* g, Brazil	5 0 0	
80000	Pestarena United, g, Italy*†	3 0 0	1/16 3/16
80000	Pierrefitte* (20000 pref.)	1 0 0	
150000	Placerville, g, g, California	1 0 0	1¾ 2¼
40000	Ravencliff g, N. Zind; c, S. Aust.	1 0 0	
80000	Rhodes Reef,* g, Wynaad†	1 0 0	⅛ ⅜
25300	Ruby and Dunderberg, g, Nev.*†	10 0 0	1/8 ⅛
232000	Sentein,* s-l, bl, Ariège, France	1 0 0	
100000	Silver Chord,* s, Colorado	1 0 0	¾ 1
50000	Silver Peak,* s, Colorado	1 0 0	⅛ ⅜
107363	So. Austral. Cop. Mines (Corp. of)	1 0 0	1/6 2/6
100000	South-East Wynaad, g, India†	1 0 0	
10000	Spitzkop,* g, Transvaal	1 0 0	14/ 16/
100000	Tocopilla,* c, Bolivia	0 1 0	¼ ⅜
200000	Transvaal,* g, South Africa	1 0 0	5s. 6s.
200000	Victoria,* g, Venezuela	1 0 0	2/6 3/6
75000	Wentworth,* g, Wynaad	1 0 0	⅛ ¼
20000	West Callao,* g, Venezuela	0 16 0	3/8 4/6
75000	West Frntino & Boliv.,* g, Colombia	1 0 0	
80000	Wynaad Perseverance,* † g	1 0 0	

MISCELLANEOUS.

Shares.	Company.	Paid.	Price.	
10	Anglo-American Brush	8 0 0	3½	4
10	Ditto do.	10 0 0	5	5½
50	Lon. & Glas. Engin. & Iron Ship	25 0 0	15	18
10	Nobel's Explosives [L]	10 0 0	16½	17½
5	Swan United Electric	7 0 0	1⅝	1¾
12	Tel. Con. & Maintenance [L]	12 0 0	36½	37½
10	United Asbestos	10 0 0	10⅝	11⅛
10	Young' Paraffin Light & M.O.	8 0 0		

HOME RAILWAYS.

ORDINARY SHARES AND STOCKS.

Present amount.	Fully pd. Stk. or sh.		Closing quotation. Last week.	Last night.
10,856,970	...Stock	...Caledonian	102¼	102¼ 102¾
14,991	...£20	...Cornwall	6	5 6
375,000	...Stock	...Cornwall Mineral	11	9 11
2,642,000	,,	...Furness Consolidated	101	103 105
4,927,900	,,	...Glasgow & So.-Western	99	97 99
12,354,547	,,	...Great Eastern	65¾	64½ 64¾
8,867,977	,,	...Great Northern Consol.	111½	112 113
1,159,275	,,	... ditto "A"	106	104 105
1,159,275	,,	... ditto "B"	152	150 152
1,000,000	,,	... ditto Def., div. to accrue from Mar. 1, '85	112	110 112
19,211,670	,,	...Great Western	138¾	138¼ 138¾
1,722,995	,,	...Highland	—	—
300,000	10 sh.	...Hull and Barnsley	4⅝	4 4¼
15,392,995	...Stock	...Lancashire & Yorkshire	110	108½ 109½
3,156,300	,,	...Lon., Brigh., & S. Coast	118	117 119
2,171,850	,,	... ditto Preferred	142	140 142
2,171,850	,,	... ditto Deferred	98¼	97½ 98
11,123,051	,,	...Lon., Chat., & Dov. Arb.	19¼	19¼ 19½
36,784,827	,,	...Lon. & No.-West. Con.	166¾	165¾ 166¼
9,784,161	,,	...London & So.-Western	127	126½ 127½
5,833,836	,,	...Lon., Til., & Southend	159	156 159
	,,	...Man., Shef., & Lincoln.	71	71 73
	,,	... ditto Preferred	104	104 106
	,,	... ditto Deferred	39¼	38 38¼
5,281,830	,,	...Metropolitan	107½	107 107½
83,270	,,	... ditto Preferred	—	—
83,270	,,	... ditto Deferred	—	—
2,250,000	,,	...Metropolitan District	42¼	44½ 45
26,428,079	,,	...Midland	130½	130¼ 130¾
4,625,869	,,	...North British	93¾	94¼ 94½
22,812,333	,,	...North-Eastern Consol.	159¼	159 159½
3,230,140	,,	...North Staffordshire	92½	92 93
237,480	,,	...Rhymney	185	185 190
3,170,870	,,	...South-Eastern	119	117 119
2,869,670	,,	... ditto Preferred	145	143 145
2,869,670	,,	... ditto Deferred	96	95¼ 95¾
1,403,300	,,	...Taff Vale	257	255 260

BANKS.

Issue.	Shares.		Pd.	Clos. pr.
130000	10	Agra [L]	all	9¼ 9

Law Intelligence.

HIGH COURT OF JUSTICE.

CHANCERY DIVISION—SATURDAY, NOVEMBER 14.

(Before Mr. Justice PEARSON).

MORGAN V. THE GREAT WESTERN COLLIERY COMPANY.

This was a motion on the part of the defendants in this action for an order directing the plaintiffs to furnish further particulars of their statement of claim in order to enable the defendants to deliver a proper defence.

Mr. Christopher James appeared for the applicants and Mr. Giffard, Q.C., oppossed the motion on behalf of the plaintiffs.

Mr. JAMES said the action was one by the landlords of certain mining property, situate in the Rhondda Valley, against the tenants, and asked for an injunction in respect of certain alleged breaches of covenants and trespasses, damages in respect thereof, and an enquiry and an account. There were two leases, under the first of which the defendants leased the minerals under the surface of the two farms at a yearly rent of 40*l.* without any royalties. The effect of the second lease was to demise to the defendants certain parts of the surface of the two farms and to give them liberty to divert water from the River Rhondda for the purpose of working the minerals, and certain other liberties. Now he asked his Lordship to order particulars to be given that the defence to the statement of claim might be framed. Of course if the defendants claimed the right under the indenture to do some, if not all, the acts complained of, some of the particulars might not be necessary. But then they claimed damages for past acts done by the defendant company. The first two acts complained of were—first, the working of foreign minerals, and the defence to that would be that on the construction of the two leases they had the right to work them, and if not that they had been doing so for many years and had actually paid compensation for them already.

Mr. Justice PEARSON: Then what possible particulars do you want?

Mr. JAMES: As to the periods during which these acts have been done in respect of which they require compensation.

Mr. Justice PEARSON: They say you have committed acts in contravention of the covenants of your lease, and your answer is that there has been no contravention, and if there has you have paid for it.

Mr. JAMES; Suppose that if on going into the accounts it was found that compensation had been paid for certain periods, they were then entitled to know what periods were claimed for, in order, if necessary, to pay the money into court. The other complaint as to which he asked for particulars was practically a claim for trespass, and he was therefore entitled to know which were the lands upon which it was alleged the trespass had taken place, as in an ordinary common law action.

Mr Justice PEARSON without calling on Mr. Giffard dismissed the application with costs. It seemed to him that all the matters complained of in the statement of claim were stated with greater particularity and care than was usual in most cases. He could not conceive any person reading it and not understanding what was asked for.

(Before Vice-Chancellor BACON).

RE THE GOLD HILLS MINING COMPANY (LIMITED), AND COMPANIES ACT.

Mr. MARTEN, Q.C., said this petition had been ordered to stand over on the 31st October until that day fortnight and come into the list to-day. It had now been agreed by all parties that it should stand over for another fortnight.

The Vice-Chancellor consented.

RE THE SILVER STREAM MINING COMPANY AND COMPANIES ACT.

On the application of Mr. Terrell this petition was ordered to stand over for a week with the consent of all parties.

RE THE WEST BROMWICH COLLIERY COMPANY AND COMPANIES ACT.

The same order was made as to this.

MONDAY, NOVEMBER 16.

(Before Mr. Justice PEARSON.)

THE LYDNEY AND WIGPOOL IRON COMPANY V. BIRD.

The trial of this action was continued to-day. The plaintiffs it will be remembered claim the sum of 10,800*l.* from Mr. William Bird and Mr. James Bird (formerly Chairman of the company), the defendants, which they allege to have been received by them from the company for promotion money. The defence set up is a denial of promotership.

Mr. Higgins, Q.C., Mr. Montagu Cookson, Q.C., and Mr. Bunting appeared for the plaintiffs, Mr. Giffard, Q.C., Mr. Swinfen Eady, and Mr. Daldy for the defendant, James Bird, and Mr. Cozens Hardy, Q.C., and Mr. Buckley for the executors of the defendant, William Bird.

Mr. GIFFARD resumed his opening speech on behalf of Mr. James Bird. He said his Lordship would remember that Mr. Poole stated in the course of his evidence that the Birds had said in the autumn of 1871 that the scheme had better rest until the spring, but that he, on behalf of the Allaways, would not listen to any such proposal, because it was impossible by reason of the position of the Allaways. Again, as to the allegation that Mr. Thomas Spencer and William MacDonald Bird were the instruments of the firm of Bird and Son, and had been placed on the directorate as such, it had been shown on the evidence that that was not the case. Thomas Spencer's qualification shares were not presented to him by the Birds, but paid for by them out of money they had due to him, and they afterwards sent him the balance. William M. Bird was put on the board simply because Mr. Poole desired to have the name of Bird appear on the prospectus. It had been said that Poole and Hughes prepared all the documents necessary for the launching of the company on the instructions of Bird and Co. That statement, however, was displaced by Mr. Poole, who said that, from beginning to end he acted on the instructions of the Allaways, and only went to James Bird for information to guide him, and the correspondence teemed with evidence bearing that statement out. With regard to the purchase agreement Mr. Bird had nothing to do with it; it was prepared by Mr. Poole on behalf of the vendors, and approved by Mr. Pritchard for the company. He asked his Lordship to hold, therefore, that the Birds were not promoters. His second point was that even if they were held to be promoters, they were yet entitled to the value of their services and disbursements upon the authority of the Emma Mining Company *v.* Grant, which he cited.

Mr. Justice PEARSON: If Bird was a promoter, can he be allowed anything for the risk in guaranteeing the shares? Grant was allowed nothing for the risk in lodging 20,000*l.* caution money.

Mr. GIFFARD said he should argue that he most decidedly could. The ground upon which Grant was disallowed payment was that they were trustees of something belonging to the company. In this case there was no ground for holding the so-called promoter a trustee for the purchase-money of the company.

Mr. Justice PEARSON: If they were promoters, what would strike me would be this—that they were guaranteeing the taking of the shares by the public for their own benefit.

Mr. GIFFARD: If they were promoters in a fiduciary sense that would be so; but here they were not. I object to the word "promoter;" there is no such thing in law. He submitted they were entitled to the value of the guarantee.

Mr. BUCKLEY, in the absence of his leader, Mr. Hardy, said he thought it would be a convenient course for him to open the case of William Bird, for whose executors he appeared before his friend (Mr. Giffard) put in his evidence. Mr. William Bird died in the month of January, 1884, and his position in this matter was very different to that of Mr. James Bird. On the 30th December, 1871, he retired from the firm of William Bird and Co., and the greater portion of the correspondence which had been read and referred to by Mr. Higgins, and which was evidence as between James Bird, was not as between William Bird, because they were signed by James Bird without the authority of the former. There was nothing to show that the contents of those letters came to the knowledge of William Bird.

Mr. Justice PEARSON: Supposing James Bird was quite right in signing in the name of the firm, would not that make his partner liable?

Mr. BUCKLEY said there was nothing to show there was any such authority. If it had been in the deed of partnership it might have been different. But, in the first place, he submitted that it was not partnership business at all to finance companies or anything of the kind, though, undoubtedly, the making of valuations was. It had been, moreover, a matter of dispute between the father and son that the latter had gone beyond the legitimate business of the partnership in doing that to which he (William Bird) objected—in financing companies, &c. In the latter part of 1871 William Bird was going out of the firm, knew nothing about this company, and was not attending at the office at the time. The only evidence the plaintiffs had to connect him with this business was that on the 29th December he had an interview with Mr. Poole (his Lordship would bear in mind that Mr. Hardy objected at the time to the evidence, inasmuch as no question had been put to Mr. William Bird on the subject at the taking of his depositions), when he told him that his brokers objected to a clause in the Articles of Association, and Mr. Poole, acting on his own judgment, expunged it. What was the explanation of that? Why, William Bird applied for 500 shares in the first instance, and signed the Memorandum of the Articles of Association; that was quite enough to give him an interest, and all he did was to call on the solicitor, draw his attention to a clause that was objected to on the Stock Exchange, and get him to alter it. That did not in any way make him a promoter. Now after the first point at which any contract was proved between William Bird and the parties acting in the promotion of the company, there came a letter addressed to him by Mr. Poole in the beginning of January, 1872, notifying that the Registrar of Joint Stock Companies objected to something in the Articles which he, William Bird, had signed and telling him it had been altered. That was the whole case against William Bird down to the 9th January 1872.

Mr. Justice PEARSON: It was arranged that Bird and Company should have a commission on all sales.

Mr. BUCKLEY: Yes; but Bird and Company were a firm William Bird was leaving; and he derived no benefit from the prospective benefit to that firm, On the 9th January something took place which was very material. There was a meeting on that day of the directors of the Lydney and Wigpool Company, James Bird being present. They had only received application at that time for a comparatively small number of shares, and so were unable to proceed to allotment. James Bird then left the room and went over to the London and Joint Stock Bank, of which his father was a director, saw his father there and returned with a letter and showed it to the directors. The letter was addressed by William Bird to Bird and Company, and was as follows:—"Lydney and Wigpool Company (Limited). With reference to what has passed at the board meeting of this day I confirm what has been arranged by Mr. James Bird, and agree to make up the applications to the total amount of 7500 shares." The result was that upon that guarantee of William Bird to William Bird and Company the Lydney Company at the next meeting went to allotment. On that guarantee William Bird afterwards took up and paid for in addition to the 500 originally applied for 1580 shares, which were allotted to him on the 8th January, 1872. Let him dwell for a moment on what that letter must have meant. It had been contended that William Bird and Son included James Bird and William Bird, and he and the firm were one and the same, but if that were so what possible object could there have been in the letter of the 9th January, for what was the good of a guarantee from William Bird to William Bird and Company if they were one and the same person and he was bound by the acts of the firm?

Mr. Justice PEARSON: It might be said that at the meeting a new arrangement was come to on the 9th January to which William Bird was no party until his consent contained in the letter had been obtained.

Mr. BUCKLEY: If that were his learned friend's contention then they had no case against him at all. He was quite willing to take it that way. At any rate, he took the letter as showing that they knew that they were not dealing with William Bird at that time, and that he had ceased to be a partner in the firm of William Bird and Company.

Mr. Justice PEARSON: This would suit you well, Mr. Buckley. That the arrangement which had been originally made was amended at that meeting when James Bird protested against being bound by the then agreement, because there had been so many deviations from it, that the directors knew at that time William Bird had gone out of the firm, and that on making a new arrangement they said—"Inasmuch as your father is no longer a partner you must have his assent." If so, that looks very much as if the agreement of December, which bound William Bird, is out of the way now.

Mr. BUCKLEY: There was a new departure; the parties were not satisfied with the position in which they stood, and they stipulated that William Bird should give his consent formally, and were satisfied on the production of that letter. William Bird had performed his part of the agreement with Bird and Company, and was therefore entitled to receive from them 5000*l.* the price for which he undertook it. Now every action of this kind was brought for the purpose of emptying the pockets of the person in a fiduciary position of money which he had received from the company, and not to recover damages. It was, therefore, essential for his learned friend to prove that William Bird received every sixpence with which they sought to charge him, and they had no evidence that he received anything beyond the 5000*l.* He had given the go-by to the question of the promotership altogether as it did not seem to have anything to do with his case, for whether James Bird was a promoter or not W. Bird certainly was not, and it was no part of the authority entrusted by him to James Bird to promote companies, the only business of the partnership being that of iron merchants. For the above reasons he contended that William Bird was clearly entitled to receive the 5000*l.* for the risk he ran for the benefit of the new firm of Bird and Co. Of course the fact of his son getting a commission and benefit from the bargain might have influenced him in consenting to stand in the breach and take up the shares, but that had nothing to do with the company, and he submitted to his Lordship the plaintiff's case against him must fail.

Mr. Justice PEARSON asked what was the signature with which the old firm signed their letters?—Mr. BUCKLEY: "William Bird and Company."

Mr. Justice PEARSON then said he thought the convenient course would be to take the evidence of James Bird first.

Mr. JAMES BIRD, examined by Mr. EADY, stated that in the year 1871 he was a partner in the firm of William Bird and Company. Previous to the 5th October, 1871, he had certain negociations with the Allaways as to raising a loan for them on their property. On that date he wrote to Poole and Co., their solicitors, a letter advising them to wait till the spring. On the next day he received a letter from Mr. Poole enclosing the draft of a proposed scheme. It was a scheme for the sale of the whole of the property. What was afterwards sold to the company was only a portion. The purchase-money was 135,000*l.* An amended scheme was proposed in November, which was the one eventually carried through. Proceeded with the valuation of the property on Mr. Poole's instructions, in accordance with a telegram Oct. 20, dated from Bristol, and afterwards confirmed by letter. Thereupon he instructed Mr. Thomas Spencer to proceed with the valuation, and engaged the services of Mr. Woolcock, who was an expert in hematite mines, to help him. That resulted in the report of the 22nd November, which was gathered from some preliminary data received from Spencer and Woolcock. There was a meeting on the 24th held at the request of the bank at which he was present and the report was discussed. Mr. Poole wished to see the report before he presented it to the bank, but he did not show it to him. The report was prepared for the bank, who found the money. He never made a formal and finished report. Received the draft of the prospectus he held in his hand originally from Mr. Poole The only part he took in the preparation of the document was the consultative part. Did not think any of the clauses were framed by him. The prospectus was issued by the authority of Messrs. Allaway. Took no part in the preparation of the Memorandum of the Articles of Association. Gave them a form because something was said at a meeting as to what form should be used. Took no part in the preparation of the purchase agreement. The arrangement to provide an office and staff for the company at 600*l.* was made in order that the expenses of the London office should be limited to a fixed sum. With regard to the conduction of the sales of the company, it was thought very desirable to have them conducted in London. Both those points were very much pressed upon him. They were not his suggestions. The arrangement was not a remunerative one for the firm. He, too, was always anxious to get rid of it. He rather objected to being appointed sales agent, as he knew too little of the trade in the hematite ores. The commission of 2 per cent. was below the usual rate. About 5 per cent. was the ordinary one. The Lydney ore was a very difficult one to treat, and for that reason hard to sell. After the agreement of the 29th December there was a meeting of the directors on the 9th January. There had been a preliminary meeting at his office, when they ascertained the number of applications were inadequate to proceed to allotment. Then the question as to the carrying out of the guarantee came up, and he gave his reasons why he considered himself no longer bound to carry that out. One of them was that he was expected to fortify it by a letter from his brokers. The result was they considered what the next best thing to do would be. It had always been understood that the bank would take a number of the shares. He was requested to see his father and ascertain whether he would step into the place of a syndicate. Went to the bank and returned to report the views his father had expressed. Told the board that his father would consent to take a certain number of the shares, but would not enter into any engagement with the company or Messrs. Allaway, but wanted the bank to be the principals in the transaction. That was found to be impossible, as the bank would not consent. It was then decided to let the agreement of December stand, and that Bird and Company should arrange matters with William Bird, his father. He told them that his father would guarantee 7500 shares for 5000*l.*, subject to his approval of the names in the share register—*i.e.*, no shares were to be allotted to persons he did not approve of. One of the conditions was that 2500 were to be subscribed for by the bank or the Allaways. The meeting was adjourned to Bristol to ascertain if the bank would do so. Went again to the bank to see his father at the request of Mr. Pritchard and brought back the letter already referred to from him agreeing to the arrangement, and showed it to those present at the meeting. They were all satisfied. The letter had been kept by the secretary, Mr. Bolling, ever since. Went to Bristol on the 19th with a number of applications for shares from friends of his father, and a blank signed form for the remainder required. The agreed price of the report was 600*l.*; 200*l.* was paid to Fossell, Pritchard, and Co. Out of the 600*l.* 323*l.* was disbursed to Spencer and Woolcock. Nearly 5000*l.* was paid to Mr. William Bird for the guarantee; 500*l.* was paid for the shares of Mr. Spencer, the money being due to him for work done in connection with the business; 250*l.* was paid to the stockbrokers as well as another amount of 353*l.* Both those amounts were paid for the settlement on the Stock Exchange. A variety of other payments were made in respect of advertising, printing, &c.

By Mr. BUCKLEY: The deed of dissolution was executed on the 30th December, 1871. Notices of the dissolution were sent out to all the connections of the firm, and to the different newspapers. The four cheques received from the Allaways were all paid into the account of William Bird and Co., then consisting of himself, and Edward Bird, William Bird, received nothing beyond 4700*l.* out of the 10,800*l.*

Cross-examined by Mr. HIGGINS: At the time the 2 per cent. commission was offered to him on the sales he must have objected to becoming sales agent because he did not accept the position until some time after it was first proposed. It was settled on the 19th of December, when the whole scheme was finally agreed to. Their original remuneration was to have been the 2 per cent. commission on the sales. He was then in communication with some stockbrokers for the purpose of forming a syndicate. If that had been done the subsequent arrangement as to the 10,800*l.* would not have been necessary. One of the grounds for his objection to becoming sales manager was, as he had stated, because he knew too little of the trade in hematite ores. The Allaways were opposed to his having so high a commission; they thought 1 per cent. to be sufficient. It was very likely that he told them it was no concern of theirs, as it affected the company alone. Irving and Slade were to form a syndicate to raise 100,000*l.* Could never get them to agree to it in writing, so the whole thing collapsed. Should have thought that he had spoken to his father about the amount of the commission, but Mr. William Bird had said that was not so in his depositions. Told him that the whole matter was under discussion before he left the firm. The only times his father came to the office was generally on a Thursday for a short time. The invoice price of the ore was then about 11s. at the mine. Thought his commission would come to about 500*l.* or 600*l.* a year, but there would be a great deal to come off that.

TUESDAY, NOVEMBER 17.

The cross-examination of Mr. James Bird was continued by Mr. HIGGINS.

Witness stated on the subject of commission on sales that the usual one to metal brokers at the date of his appointment as sales manager was 1 per cent. He supposed it would be 1 per cent. on the contract price. His commission was on the invoice price of the ore including carriage &c., the proposal as to the arrangement for the offices in London originally came from Mr. Spencer. On the 28th of November he put in an offer from another firm for finding the offices. It was considered better to have the offices of the company at Bird and Company's; they gave the company offices which were at this moment let at 200*l.* a year. With reference to the prospectus, he had frequent interviews with Mr. Poole for the purpose of settling it. His name did not appear on the original prospectus, or on the draft of that document. It had been put on some of the drafts, but not with his consent. In the prospectus of the proposed debenture company he certainly was put down as a director and with his consent. In that draft prospectus his father's name appeared as trustee for the debenture-holders. Referring to the memorandum of the Articles of Association, witness said that he believed that he had frequent interviews with Mr. Poole as to that document. Had paid Irving and Slade 200*l.* for putting their names on the prospectus. Very likely he put Mr. Bolling on the prospectus as secretary *pro tem.* Mr. Bolling was their managing clerk, and he remained secretary to the company for two years. He was the gentleman who retained Mr. William Bird's letter as to the guarantee; it went into his hands on the 9th January. The papers of the company were all kept seperate to those of the firm. Mr. Bolling succeeded to the business of Bird and Co. in 1879. Bird and Co. got the prospectus printed and paid the bill. They were issued by the secretary of the company from their offices. There was no joint arrangement between Mr. Spencer and himself as to the profits of business in 1871, latter on there was in 1872-3. Spencer had half the fee of 600*l.* which he received from the bank for the valuation. He paid 500*l.* for Spencer's qualification shares. That came out of the portion he was to receive out of the 10,800*l.* It was agreed that he should have his qualification shares paid out of that amount, nothing further. The arrangement was mentioned in the correspondence, and was made after the 24th November. It was a verbal agreement made at the time when it was fixed that Spencer should be a director. He had proposed that he should be one sometime before he was accepted. Told Spencer before the registration of the company that the amount had been increased from 5000*l.* to 10,000*l.* Knew Spencer had denied that in his depositions. There was only an arrangement with him at that time with regard to this particular matter, not a general one. There was a separate agreement in respect of every business transaction of him at that date. They generally gave him one-half of what was received. Did other business with

him besides company business. Had never seen a report of Bagnall and Carlton. His firm was the one referred to in a passage (read by Mr. Higgins) in the report of that case. His firm had valued many mining properties, raised loans on them, and negociated sales. Was present when Mr. Spencer made his deposition. His father was a director in two companies only, and the promoter of a small experimental company called the British Metal Extracting Company, formed in 1862 for the purpose of trying a patent.

Mr. Justice PEARSON here interposed, and said he did not see the use of going back so many years, 1871 was all very well.

Cross-examination continued: In 1874 there was a disagreement between him and Spencer which estranged them for many years. The minutes of the 9th January were a copy of what Mr. Poole sent to be inserted in the minute-book. The preliminary meeting, which took place at his office, was not treated as a board meeting, and there was nothing in the minutes about it. One of his reasons for objecting to be bound by the agreement was that he considered the Allaways had loaded the company with low contracts, contrary to the understanding. It was not proposed at the meeting to reduce the amount of 10,800*l.*, which it had been arranged was to be paid to him. Had nothing to do with the formation of the syndicate. His father first agreed to join it at the request of Irving and Slade. All the first arrangements were with that firm. Irving and Slade agreed to paying 500*l.* for Spence's qualification shares.

Mr. Justice PEARSON asked Mr. Giffard, if he had any questions to ask the witness; he supposed he would treat the matter on the maxim *de minimis*, &c.

Mr. GIFFARD said he had only one question to ask the witness in re-examination. Referring to the estimate which he had made for his friend, Mr. Higgins—viz., that his commission of 2 per cent. on the sales, supposing 50,000 tons of ore were raised and sold at 12*s.* a ton would come to 600*l.*, was that a gross profit or net profit?——Gross profit.

From that there would be deductions?——Yes; 1 per cent. for brokerage which would reduce it to one-half, and others.

Mr. HIGGINS then by the permission of the Judge asked the witness some further questions as to what the firm received each year for brokerage, but Mr. Bird could not recollect.

Mr. WILLIAM MACDONALD BIRD, examined by Mr. EADY, said he was a brother of the last witness, and formerly a partner in the firm of Bird and Company. He retired in 1869. Became a director of the Lydney Company. Was not under the influence of Mr. James Bird in any way. Paid for his own qualification shares. Was present at the board meeting on the 9th January. Remembered his brother leaving the board to see his father at the bank for the purpose of asking him about the guarantee. He afterwards returned, bringing a paper back with him. Had never seen the document placed in his hands until to-day. The paper his brother brought back was shown to Mr. Pritchard, he would swear. He thought it was also shown to the Chairman and Mr. Poole. Considered at the time that the question of the guarantee was outside the business of the board.

Cross-examined by Mr. HIGGINS: Did not know before that meeting anything about the guarantee of William Bird and Company. Did not know of the syndicate which was sought to be formed by the brokers. In short, he knew nothing of the business until the board meeting. Had signed the Memorandum of Association. Did not remember where. Had consented to be a director before that. Mr. James Bird had asked him. Was not at the preliminary meeting. Got his information as to what were the contents of the document brought back by his brother from his father by enquiring at the time.

There was no re-examination of this witness.

Mr. FRANCIS BOLLING, examined by Mr. EADY, stated that he was connected with the firm of Bird and Company for many years. Up to 1879 he was their managing clerk. Since that date he had continued the business. Remembered the formation of the Lydney company. Was secretary of it for two years. Was present at the meeting of the 9th of January. Could not remember whether James Bird left the meeting. He (James Bird) gave him the document handed to him (referring to the guarantee) during the meeting. Did not mix in the directors' conversation. The document was afterwards retained by him as secretary. When he took over the business of Bird and Company he also took over all the books. The books of 1871 had been destroyed in accordance with the custom of the firm. They destroyed their books every six or seven years.

By Mr. BUCKLEY: When Mr. William Bird left the firm a notice of the dissolution was issued. Had no doubt it was sent to Messrs. Poole and Hughes in the ordinary course, as also to Messrs. Pritchard and Swan.

Cross-examined by Mr. HIGGINS: William Bird came to the office very rarely, barely once a week. He did not pay much attention even to the important business, and Mr. James Bird had to bear the "brunt" of it, and a great deal also fell to witness. The offices of the Lydney Company were on the second floor and Bird and Company's on the ground floor. Found Mr. William Bird's letter as to the guarantee among some of the company's papers.

By Mr. BUCKLEY: The notice of the dissolution of partnership appeared in the *Gazette* on the 5th January, and he had no doubt that the notices were issued before that.

This concluded the evidence for the case of the defendant, James Bird, and at this stage the Court adjourned.

WEDNESDAY.

This morning the depositions of Mr. WILLIAM BIRD were read at length in support of his case. He denied all knowledge of the transaction in question, and said that such business was outside the legitimate business of the firm. The depositions in effect bore out his counsel's opening statement.

Mr. SWINFEN EADY summed up the evidence on behalf of James Bird, and submitted, in the first place, that he was not a promoter; and, secondly, that, under any circumstances, he ought to be allowed to retain, not only all that he had disbursed, &c., but also the value of the guarantee.

Mr. BUCKLEY, for Mr. William Bird, put it to his Lordship that his client had not been proved in any way to be a promoter, even if James Bird had.

Mr. HIGGINS, replying on the whole case, argued that the evidence brought Bird and Company within the scope of the authorities in his favour on the point of promotership. The Birds were promoters not only by reason of the acts which they did, which made them promoters in the sense the word was understood by the Court of Chancery, but they made themselves so, inasmuch as they provided for taking a substantial interest in the company in the matter of the brokerage and 600*l.* a year for offices and staff, which he contended was their primary object in launching the company. They were not merely *de facto* promoters, but you had them stipulating for benefits. As to Mr. William Bird he was a member of the firm of Bird and Company, and must have been quite well informed as to what was being done in the important matter in which the firm were then interested, and, therefore, he was bound by the agreement of December, 1871. What was done in January between him and James Bird did not affect the matter as far as the company were concerned; in fact, Mr. James Bird had himself said that the effect of the arrangement on the 9th of January was that the old agreement stood. As a man of business and a director of the Joint-Stock Bank, was it likely that he did not know all about this transaction? At any rate, if he did not choose to enquire, so much the worse of him. He submitted the plaintiffs were entitled to the relief they sought.

His Lordship reserved judgment.

At the Mansion House, on Wednesday, Robert Charles Smith, a clerk, was charged before the Lord Mayor with stealing warrants for the delivery of metal. Mr. Wontner, solicitor, who appeared for the prosecution, said the prisoner for the last nine years had been clerk to Messrs. Merton and Co., metal merchants, of Metal Exchange Buildings, City, and till lately great confidence had been reposed in him. Recently many letters and documents had been missed, including, amongst others, a warrant for the delivery of 25 tons of spelter, or zinc. On enquiries being made, it was found that the prisoner had been dealing with the warrant, and on Monday he was arrested by Detective-sergeant Hancock. In answer to the charge he said he had been expecting it, and he showed the detective other warrants for metal of the value of between 5000*l.* and 6000*l.*, which, however, he had not dealt with. He also produced a great number of letters, about 1000 in all, which had been addressed to his employers. Counsel said he should charge the prisoner with stealing three warrants for the delivery of spelter, and with purloining the letters. Evidence of the prisoner's arrest having been given, the Lord Mayor remanded him.

SUPREME COURT OF JUDICATURE.

THE COURT OF APPEAL—WEDNESDAY, NOVEMBER 18.

(Before the Lord Chancellor, Lord Justices BOWEN and FRY.)

RE THE NEATH HARBOUR SMELTING AND ROLLING WORKS AND COMPANIES ACTS.

This was the application of Mr. W. Stevens, the petitioner in a petition for the winding-up of the above company, for permission under the Bankers' Books Evidence Act, 1879, to inspect the bank books of the company, and use the evidence thereby obtained for the purposes of, and at the appeal now pending from, the judgment of Mr. Justice Mathew, pronounced in October, dismissing the petition with costs.

Mr. Buckley appeared for the applicant; Mr. Grosvenor Woods and Mr. Pike for the company.

Mr. BUCKLEY said the facts of the case were as follows:—Mr. Stevens presented the petition on the 23rd July, 1885, and the petition was heard by Mr. Justice Mathew in the vacation on October 1st, when he dismissed it. From that dismissal an appeal was pending before their Lordships. The petitioner was a shareholder in the company, and held 400 shares, of 5*l.* each. He had paid 500*l.* on these shares, and on the 23rd July, when the petition was presented, there was a further sum of 500*l.* due from him upon them, but on that day, acting on advice, he paid the amount, thus making it 1000*l.* which he had paid in all. Immediately after the petition was presented a further number of shares were allotted, and he had evidence to show that if they could get at the bankers' books of the company they had reason to believe that they would be able to trace the 500*l.* which was paid by Mr. Stevens in July, and show that it was applied in making payments for the shares so taken up. Now the principal ground upon which the learned Judge of the Court below decided the case was that the petitioner was only one shareholder, and a large number of other shareholders wished to go on and continue the undertaking in which they jointly embarked. The shareholders who appeared to oppose the petition at the hearing were 23 persons, holding 1123 shares. Of those (he said) 14, holding 769 shares, were persons who took up the shares after the 23rd July, and it would be a very relevant fact, on the hearing of the appeal, to determine whether these shares were not really taken up by the promoters of the company in order to bring the so-called shareholders before the Court for the purpose of opposing the petition. On the 23rd July there were 994 shares only issued, of which Mr. Stevens held 400, on which he had paid 1000*l.*, and the others together had only paid 840*l.* One of them, a Mr. Davis, who was the holder of 200 shares, had paid 25*l.*, the application money alone, and nothing at all on the allotments; and in dealing with those shares, therefore, he should ask their Lordships to disregard them. The petitioner had been, in fact, caught in a trap. Of the 940 shares in question which were allotted after the 23rd of July there were issued on the 25th, 27th, and 28th of July shares making the total allotted up to 1744, and on the 24th August seven more were allotted for the first time to the signatories of the Memorandum of the Articles, which brought the sum total up to 1751. Among the persons to whom the allotment which they said was made after the 23rd July was made were a Mr. Millen (200), Mr. Devon (100), Mr. Evans (100), and Mr. Glanville (50). Now, he had an affidavit made by Evans to show that Millen, Devon, and himself were envelope addressers in the employ of a firm of advertising directors, with offices in the same building as the company, that Evans was asked to take his shares by a man called Cheakins or Glanville, who gave him 5*s.* for doing it, and that he had signed the application for shares, but never paid anything for them, or had he signed any document from that day to this empowering anyone to put him forward as opposing the winding-up of the company. The evidence stated that the two of the others mentioned were in the same position as himself; their salaries were 1*l.* a week, and Evans said he had a wife and several children. Evans's address was given on the list produced at the hearing as 154, Upper-street, Islington. They had enquired there, but could not hear of such a person. Glanville's was given as being in some street at Walworth. There the woman said that Glanville did not live there, but any letter addressed there would reach him. It appeared that a man of the name of Cheakins did live there, so his case was that Cheakins and Glanville were one and the same person. He wanted to trace if he could the disposal of Mr. Stevens' 500*l.* paid on the 23rd of July.

Lord Justice BOWEN asked what was the section under which the application was made?

Mr. BUCKLEY: This is the section, "On the application of any party to the legal proceedings, the Court or Judge may order that such party be at liberty to inspect and take copies of any entries in the bankers' books for any of the purposes of such proceedings."

The LORD CHANCELLOR: You take the order at your peril. I understand my brothers to say that it has not been argued whether or not we are the proper Court to make the order.

Mr. BUCKLEY: It was argued about a fortnight ago.

Lord Justice BOWEN: But not decided.

Mr. BUCKLEY: The other side agreed to the application.

Mr. WOODS: I said simply that the respondents did not wish to take that particular objection.

The LORD CHANCELLOR: Yes'; they are not parties interested. It is the bank.

Mr. BUCKLEY: I know it was entertained on the other side's acquiescence.

Lord Justice BOWEN: We are to surmise that the 500*l.* has been used for the purpose of taking up the shares.

Mr. BUCKLEY: Well, I have asked at the bankers', and have reason to believe that I shall be able to show that is what the evidence is.

The LORD CHANCELLOR: I do not think we need trouble ourselves whether we are the proper Court or "the Court" at present.

Mr. GROSVENOR WOODS (for the respondents) said he was somewhat surprised that his learned friend had come to ask their Lordships for indulgence in this case. He apprehended it was the duty of the company, who were now appearing for absent shareholders, to point out why the petitioner ought not to have any indulgence, even if there were truth in the facts as stated to their Lordships. The petition, as had been said, was presented on the 23rd of July, within a year after the formation of the company, and it alleged that the company had done no business within the year, and that there was also insufficient capital. The petition came on before Mr. Justice Chitty before the vacation on the 8th of August, and before that two summonses for inspection and discovery of documents had been taken out. On the 8th of August, when the matter came on before Mr. Justice Chitty, the petitioner asked for the petition to stand over, in order that he might introduce further evidence, and it was, thereupon, ordered to stand over. On the 12th August that application for discovery came before the chief clerk, and was refused, in accordance with the general practice of the court, as laid down in the cases—that in a winding-up petition the petitioner has no right to "ransack" the company's books. On the 19th August the case came before Mr. Justice Mathew, the Vacation Judge, and stood over in order that the witnesses of the company might be cross-examined. Leave was then also given to amend the petition. The cross-examination took place, and the company's witnesses were cross-examined at length, and he should show their Lordships by the affidavits that the books, including the pass-book, were there. The pass-book was asked for, and inspection of it refused.

Lord Justice FRY: At that time were the shareholders, who have been impeached, before the Court?——Mr. WOODS replied that they were, and the cross-examination of the company's witnesses went to that very point. There was a discussion about the pass-book, which was called for, and was not handed to the petitioner's solicitor, but the company's counsel said we will hand it to the witness whom you are cross-examining, and you are at liberty to question him on any particular item, and that was done. They were now asking for leave to get evidence which was perfectly open to them at the cross-examination.

Lord Justice BOWEN: In a cross-examination on a book which the solicitor had never seen?

Mr. WOOD: Yes. That these shareholders were "bogus" shareholders was the very point that they cross-examined on. After the cross-examination the amended petition was served.

Lord Justice BOWEN: Was Evans cross-examined?

Mr. WOODS: No, my Lord. Then on the 1st of October the petition was heard, and Mr. Justice Mathew reserved his judgment till the next day, in order to carefully consider the case, and he said, in his judgment, that he had done so. The day after the application was made to the company's solicitor for the list of shareholders used at the hearing, and on the 5th of October they applied to the Judge on the strength of some—at any rate on one—of the grounds now put forward to stay the drawing up of the order, but Mr. Justice Mathew refused to make the order. Notice of appeal was given on the following day from the judgment, so that presumably the petitioner was contented to rest his case on the facts before the Judge in the Court below, and it was not the result of any further discovery. Now he would refer to some of the evidence, in order to show that this question was present in the minds of the petitioner's advisers at the cross-examination.

Lord Justice BOWEN: Was it ever suggested to Mr. Justice Mathew that these shareholders were not *bona fide* ones?

Mr. WOOD: Yes, certainly.

The LORD CHANCELLOR: I suppose you would not deny that upon this question it would be a very important matter whether the facts alleged in this affidavit are true or not. Mr. Justice Mathew I observe rests his judgment mainly, I may say entirely, upon the proposition that the larger number of the existing shareholders are desirous of going on with the concern.

Mr. WOODS said that was the point at which they felt the pressure more than any other. But, first of all, his learned friend did not get rid of a sufficient number of shareholders to give him a majority even if he managed to get rid of the 450 shareholders he expected to.

Lord Justice FRY: But if they can prove that with regard to the 450 we might give a similar decision with regard to some of the others.

Mr. WOODS: Thought his Lordship would not do that in a case where such extraordinary indulgence had been granted to the petitioner, as in this case. Mr. Masters, who came forward to make this affidavit, was a very zealous collector of evidence, and he even lost his situation through it. The Judge did not consider it made any difference as regards his own judgment if it did not displace the majority of the shareholders, and, therefore, the mere fact that some of the shareholders who opposed the petition turning out not to be *bona fide*, would not be enough to induce their Lordships to allow fresh evidence to be introduced on that point after the petitioner had had every opportunity of finding out who the shareholders were. Then, although his Lordship was right in saying Mr. Justice Mathew laid great stress on the fact of the majority of the shareholders being against the petition, yet he had also personal objections to the petitioner himself, who was a gentleman, as he (the Judge) said, in the habit of speculating in shares in mining companies, and he did not consider that the gentleman ought to succeed in the winding-up petition, particularly as he was himself ignorant, on his own admission, as to whether 5*l.* or 5000*l.* was required to carry out the objects of the company.

Lord Justice BOWEN: Was it suggested in any way in the cross-examination that these persons were envelope addressers receiving 1*l.* a week salary?

Mr. WOODS: That was not suggested, my Lord. It must, however, have been present in the minds of the petitioner's advisers that some of the shareholders were not *bona fide*, because in the amended petition there is an allegation founded upon it. Mr. Justice Mathew seems to have thought that if some of the shareholders really turned out to be mere nominees of the promoters it would not alter his judgment.

The LORD CHANCELLOR: They are not mere nominees, but nominees without money.

Lord Justice FRY: The suggestion is worse than that; it is that moneys actually paid by the petitioner were used for defrauding him.

Mr. WOODS: The question is whether he is entitled to wind-up the company against the wishes of the majority of the shareholders?

Lord Justice BOWEN: One ground was that the company was a "bubble" company, and we are told that these 400 shares were given away for the purpose of opposing the petition. I cannot find any reason for thinking that anything ever arose before Mr. Justice Mathew as to the direction of these 400 shares.

Mr. WOODS: Yes; clearly that was so. The whole case was that after the petition was presented additional shareholders had been brought into the concern who were not *bona fide*. No doubt what fell from Lord Justice Fry carries the case further, but I say that was a point that ought to have arisen in the cross-examination.

Lord Justice FRY did not think that would be a thing which would suggest itself even to the mind of a person very much versed in fraud.

Mr. WOODS said the affidavit only made the suggestion that the money of Stevens was applied for making payments with reference to the fresh allotment.

Lord Justice BOWEN: Have you answered it?——Mr. WOODS: I have not, because I am dealing simply with the question whether your Lordships will give the petitioner the leave asked for or not, without going into the merits.

The LORD CHANCELLOR: Surely it would be a material argument for us as a ground for this application, and would it not have been well for you to have answered it?

Mr. WOODS submitted that taking the allegation as it stood in the affidavit it came to nothing, as it did not even identify the other shareholders against whom the complaint was made.

The LORD CHANCELLOR: Is there any cross-examination to show that prior to the hearing of the petition the petitioner was under the belief they had allotted shares to the new shareholders paid out of his money for the purpose of opposing the petition.

Mr. WOODS: Not actually that. He would now refer to some authorities in support of the proposition that the Court would not allow the admission of further evidence unless it was satisfied that there had been some fraudulent keeping back, or that the evidence could not have been obtained before.

Lord Justice FRY: The Court has discretion, has it not? Are there any cases to say that in any particular cases the discretion shall be limited?

Mr. WOODS: No, my Lord. He, however, cited Saunders *v.* Saunders.

Lord Justice FRY: The case does not support the proposition.

Mr. WOODS then cited the case of the Emma Mining Company, where it was held that the petitioner had the right to the production of the company's books for the purpose of testing the respondent's evidence and for no other purpose.

Mr, H. CARTER, a creditor of the company, who appeared on the petition, and was heard at the hearing by the Court below them, rose to address the Court in person when,

Mr. BUCKLEY said the gentleman was not a respondent in the matter befor their Lordships; the company were the only respondents.

The LORD CHANCELLOR: Then I do not think he has any locus here.

Mr. CARTER: I am a creditor, and was heard in the Court below.

Mr. BUCKLEY: He opposed the petition.

Mr. CARTER: No; I am neutral, my Lord—perfectly neutral. (A laugh.)

Mr. BUCKLEY: If he is neutral what is the good of his addressing the Court.

Lord Justice FRY: Must you not make parties of all interested?

Mr. BUCKLEY: No, I think not.

Mr. CARTER submitted that notice ought to have been served on all parties included in the order.

The LORD CHANCELLOR: I do not think we can hear you, but it does not press you materially as you neither support or oppose.

Mr. CARTER: It is very material, my Lord.

The LORD CHANCELLOR called upon Mr. Buckley to address the Court on the question whether there was due diligence applied to the obtaining of evidence.

Mr. BUCKLEY: Mr. Stevens says he did not know until after the 1st of October it was suggested that any of the signatures of the opposing shareholders were not the actual signatures of the parties who appeared to sign them. Mr. Evans in his evidence said he never signed anything at all. What took place was this—his learned friend, Mr. MacLaren, said that he appeared for a certain number of shareholders, and handed a list up to the Judge, and that was the first time these names were known to the petitioner.

The LORD CHANCELLOR here intimated that the Court would not trouble the learned counsel further.

The LORD CHANCELLOR said it appeared to him that it would be extremely undesirable to go into a minute discussion of this matter because in necessarily referring to the relevancy of the new evidence, and the propriety of its being admitted one might inadvertently say some things on the whole or any of the facts, and thereby possibly affect the appeal which was to be heard. Although he could not say that he was entirely satisfied with the explanation given as to due diligence having been used to obtain the evidence prior to the hearing of the petition, he thought it was clear that the application should be granted, for it would be a disastrous thing for justice if it could be supposed that through any technicality the real truths, and facts in a matter should be shut out. The particular grounds and circumstances under which the discretion given to the Court to admit new evidence was to be applied were in his view various, and it was always too much a question of degree as to when it was or was not improper for the Court to admit new evidence for him to give any *a priori* explanation as to how, or when, and in what circumstances that discretion could be exercised. And he thought they had had an illustration in the argument of that day how dangerous it was to give any. On that subject all he was going to say in this case was that he here gave a reservation, which he was of opinion ought to be insisted on in all reported cases on such a subject in express terms, namely—that the particular circumstances, and the particular condition of those circumstances were what had lead him to exercise the discretion in this case.

The Lord Justices concurred. Application granted, permission given to the respondents to answer affidavits, and cross-examine witnesses, and the question of costs reserved pending the result of the appeal.

THE PROPOSED AUSTRALASIAN EXHIBITS OF GOLD CRUSHING MACHINERY, 1886.

A meeting of the agents' general of the Australasian Colonies was held at the offices of the Queensland Government, 1, Victoria Chambers, Westminster, on Monday afternoon, to consider the subject of gold crushing exhibits at the Colonial and Indian Exhibition next year; and Mr. Thomas Cornish, the proposer of the scheme was invited to attend to supply any information that might be required. The colonies represented were New South Wales by Sir Saul Samuel, K.C.M.G.; Victoria by Mr. Robert Murray Smith, C.M.G.; New Zealand by Sir F. Dillon Bell, K.C.M.G.; Queensland by Mr. Garrick, Q.C. and C.M.G., and South Australia by Sir Arthur Blyth, K.C.M.G.

Mr. CORNISH read to and laid before the representatives of the gold producing colonies a statement of his views as to the best means to be adopted to make this special exhibit the great success it is sure to be if carried out upon the lines proposed and published as follows:—

GENTLEMEN,—I have the honour to lay before you my views for carrying out the proposed special exhibit of quartz crushing machinery and other appliances for the production of gold, to be in active operation during the forthcoming Colonial and Indian Exhibition, 1886. I need not dwell upon the desirability of such an exhibit as one calculated to do immense good to the colonies generally, more than to say that I believe it can be made the most attractive, interesting, and instructive exhibit ever shown at any exhibition. The question of our gold supply is one attracting such serious attention from all classes of society, and in fact all nations and people, that the information as to how, when, and where a permanent and increasing supply of gold can be maintained, is a matter of such vast importance to the world that the representatives of the Australasian gold-producing colonies will, I think, be wisely serving the interest of the several colonies they represent by taking immediate action to adopt the means for carrying my proposal into practice.

In the first place this must be a distinctive exhibit of itself, independent of other commissions, and carried out by the joint representatives of the colonies here in London, who must make a joint request to H.R.H. the Prince of Wales for it to be done, and thereby obtain his sanction and the space.

2.—That the present representatives form themselves into a committee to carry out the scheme.

3.—That the several colonies, in proportion to their interest, shall raise a guarantee fund to cover the preliminary expenses to carry it out, by enabling me to proceed (at once) to the colonies, to go through the gold fields, inspect the mines, arrange with the companies for the supply of quartz, wash dirt, &c., and to select the machinery for the operations.

There need be no apprehension of difficulty in carrying out the details if I am provided, first, with the cordial approval and co-operation of you gentlemen, and the preliminary funds for travelling expenses. That being the first thing to do, I propose at once to telegraph out through the Press the nature of the arrangement made, the proposal for which has already been before the public in the colonies and highly approved of; that, in the meantime, will prepare the way for the introduction of the matter to the mining companies and the manufacturers of machinery on my arrival out there as to the requirements. It will therefore be necessary that I proceed at once to the colonies, calling at Adelaide, then on to Melbourne, Ballarat, Sandhurst, and other gold fields of Victoria, to make arrangements for the supply of battery, engine, &c., to be on loan as an exhibit, to be sold for the proprietors after the Exhibition is over. From thence I propose proceeding overland to New South Wales, visiting the several gold and silver fields, there also to make arrangements with mining companies. Thence on to Queensland to the chief gold fields for the same purpose, then back to New Zealand, and visit the gold fields there, and from thence home in time to complete the erection of plant for May. I propose to arrange for the supply of not less than 1000 tons or so of gold ores from (say) 100 different representative mines, about 10 tons from each, so divided in the several districts as shall be a fair representation of the mining interest throughout the colonies. In arranging the selection of mines for representation I should in each colony consult with the local government and mining authorities before making absolute choice, and if there were more mining companies applying for the privilege of sending quartz or washdirt than the number to be allotted for the district permitted, then the mines of lesser note must be decided by lot, or reduce the quantity to 5 tons per company. All quarts, washdirt, or ores sent for manipulation by this exhibit must be on condition that the gold obtained belongs to the Committee of Representatives of the Colonies, to be sold by them to defray cost and expenses in connection with the exhibits. I estimate that 1000 tons of quartz can be obtained that will average fully 1 oz. to 1¼ oz. of gold per ton, which realise from 4000*l.* to 5000*l.*; this will amply provide against loss to the guarantee fund and pay all expenses. Each company as selected to provide a quantity of gold ore, would also prepare a short statement of the history of the mine, with plan of workings and general balance-sheet, showing the profits and working expenses. During the day that each company's quartz is being operated on these circulars can be given away to visitors to the extent of from 5000 to 10,000 persons. This will be a simple and practical plan of advertising that would create a wide-spread interest, and diffuse throughout a large circle a mass of useful and interesting information that could not otherwise be given

An appointed time each day, say from three to four, should be set apart for the process of cleaning up the batteries, and thus illustrate practically before a large audience the process of washing off, amalgamating, retorting, smelting, &c. On special days, say, on Wednesdays, a select audience might be occasionally invited to attend this interesting process, and the representative of the colony whose ores are being crushed that day might preside to receive distinguished visitors, and, with the aid of the lecturer give explanations of the process of operations for getting gold, and the value of the auriferous resources of the several colonies. On each day during the process of cleaning up the battery myself or some other mining authority (when no noise is being made by the stampers) can deliver a short lecture on practical gold mining generally and the speciality of the mine or mining district from which the stone has been crushed.

The staff required, besides myself, would be only an engineer, a battery man, and a few lads. The quartz can be all packed in bags of colonial make, brought here as ballast (at lowest rates) in different vessels, and delivered from the docks or warehouses as wanted, for a few days or a week's use to the South Kensington Railway station.

This, gentlemen, is a brief outline of my proposal for giving special prominence to the gold mining interest of the Australasian colonies before the British public next year during the Exhibition, and a better opportunity for making known the value of our auriferous resources is not likely to occur again in our time. Therefore, I strongly but respectfully urge on you its immediate consideration and adoption.

We are glad to see that this valuable suggestion is being seriously entertained by the representatives of the Colonies, and hope they will devise the means of carrying it out without delay, as there is little time to lose. As the author of this scheme truly says, no better opportunity ever offered, or is likely to again, for bringing before the notice of the British public the interesting methods of obtaining gold as now in general use in Australia. Who is there amongst us that is not interested in the gold question, and who out of the millions have enough or any to spare? Therefore an exhibit such as proposed is likely to be, and we predict for it the greatest success of any exhibit ever offered in the world. In the carrying out of the details of this scheme we hope that a complete unity of purpose will be displayed, and that no local or intercolonial jealousies will mar its success. Mr. Cornish, who as a practical mining engineer, and a well-known authority on gold mining, not only throughout the Australasian colonies but in other parts of the world, has for several years advocated this method of giving special prominence to the value of the auriferous resources of the colonies; first in 1877, in Melbourne prior to the Paris Exhibition, when he urged the matter strongly on the Victorian Commissioners to send a battery there; then again, after the Denver Exhibition in 1882 and in June last, through our columns, again brought the subject before the public notice. By dint of energy he has aroused the attention of those who are and ought to be interested in the subject, and we are glad to notice that the *Argus* and other colonial papers are giving it their support. The author, who is thoroughly acquainted with the subject has given it much thought, and has devised a scheme that can not only be made profitable or self-supporting, but by the simplicity and practical method laid down for working out every detail, will afford a thorough and complete system of advertising the merits of each separate mine at a mere nominal cost, to the companies, and at the same time create such a wide-spread interest and enquiry into the resources of the colonies as could never be done by any other form of exhibits. Bales of wool, bottles of wine, samples of timber, grain, &c., are not of very special interest to the general sightseer at exhibitions—although of great importance to the broad public. Gold crushing machinery in motion, and the cleaning, amalgamating, and retorting of the gold will be such a novelty in England that it will create a wide interest in the exhibits, as also to the gold mining industry. Having awakened a special interest in Australian gold mining by the information we have supplied we shall watch with much interest the progress made by the representatives of the colonies for giving practical effect to Mr. Cornish's valuable suggestions. The proposal to have a time allotted for cleaning up the batteries, and a descriptive lecture every day will be such an attraction that a tolerably large space will be needed to accommodate those who will wish to avail themselves of the opportunity to see the process by which gold is obtained from the earth. From what we know of the feeling amongst the gold mining community throughout the colonies this joint special exhibit will be strongly supported, and there will be no lack of offers from companies to supply the quartz, or from manufacturers to supply the machinery and appliances. We believe this exhibit, if carried out as proposed, will do more to enlighten the British public as to how, when, and where a plentiful supply of gold can be obtained than anything else ever done.

A LITTLE GRIEVANCE.

Communications not unfrequently reach us from shareholders in mining enterprises, and especially from holders of shares in English companies working mines in foreign countries, complaining that in the intervals between the half-yearly or yearly meetings no information is vouchsafed to them, and that they are kept in the dark regarding the progress or otherwise which is being made in the development of the properties in which they are interested. That this complaint does not apply universally, nor even, we are glad to believe, generally, is evidenced by the fact that week by week several columns of reports from agents and managers of British and Foreign Mines are sent to us, and thus obtain large publicity; and we are also aware that there are other mining companies, the directors of which are in the habit of sending direct to the shareholders any occasional information of interest or importance. But, excluding these companies, there still remain many mines, the shareholders of which have good ground for feeling aggrieved at the total absence of what may be called interim information. The directors of some of these undertakings are sad sinners in regard to the mystery and obscurity with which they see fit to enshroud the working of the properties entrusted to their charge. In the prospectuses of new mining and other undertakings every point and every fact likely to attract subscriptions for the shares is set forth prominently and in the rosiest light; but after the money has been subscribed the shareholders only too frequently find that they are treated more like children than sensible business men, and that any attempt to obtain information, except by a kind of cross-examination of the Chairman at the general meeting, is resented as somewhat of a liberty, and as implying a want of confidence in the management. Now, a *bona fide* shareholder has a perfect right to keep himself *au courant* with the working and progress of mining properties in which he has an interest, and if the business is conducted in an honest and straightforward manner it is difficult to conceive what motive can exist for reticence or mystery on the part of the managing body. Even if matters are not going on very favourably a shareholder ought to be acquainted with the fact, otherwise he may reckon as a good asset shares which are comparatively worthless; on the other hand, if the property is opening up well, with the prospect of great improvement, it is of equal importance that this should also be known, so that a shareholder, ignorant of the prospective value of his property, shall not sacrifice at a low price shares which may probably in a short time double or treble in value. The expense and trouble of sending out—say, monthly or every two months—short printed slips, containing a summary of the work in progress and the results achieved, would be but small, and would be greatly more than counter-balanced by the effect it would have on shareholders in inspiring them with confidence in the board, and keeping them posted up in the approximate value of the shares they hold. These remarks are not intended to apply to any particular company, but it must be obvious to our readers that there are many mining enterprises in which dissatisfaction exists in connection with the mystery which is permitted to surround the position of affairs and the prospects of the future. It would be better for all parties concerned that there should be no suspicion of concealment, or even the appearance of unwillingness to give information. If money is to be largely attracted into mining industry it can best be done by affording the investing public the assurance that they shall be constantly informed of the position and prospects of the company to which they are invited to subscribe. If this were acted upon we should receive far fewer letters containing complaints of the nature we have referred to.

MINING SHARE PROSPECTS.

Mr. JOHN B. REYNOLDS writes:—Those readers of the *Mining Journal* who were so good as to peruse the last article I sent will have seen by recent events that the anticipations there set forth have been in part realised by facts. It is indeed a matter calling for congratulation and thankfulness that the commercial gloom which has so long depressed us is passing away. The difference to speculators has already been very great, and the amount of money available for investment is sensibly increased. The Iron Market has, perhaps, felt the stagnation the most keenly, and it is natural that it should be first to experience the reaction. But the improved state of the copper market cannot pass without comment, and for tin there appears to be promise of considerable rise in price. It was expected that the highly speculative class of American securities would be the first to feel the influence of the improvement, as far as the Stock Exchange is concerned, and the advance in prices has in many cases been very surprising. No doubt operators on the other side of the Atlantic have taken heart again, and seeing that improvement in trade is so near are buying freely. We may look therefore, and that before long, for inflated markets for speculative stocks and shares. It does not follow that "bears" will be safe to operate; however, we have now excited markets in the near future The depression has been of long duration, and financial houses, which have stood the test, have proved themselves to be sound, beyond suspicion. The same may be said of business houses generally—therefore it may be easy for prices to be run up, and to be kept up to a high level in spite of adverse combination. In fact "bears" have had their day for the present, and if they have not secured their profits—it is more than probable that they are destined to suffer severely. Shareholders in mines are naturally hopeful. The state of the metal markets is enough to make them sanguine. The management of our mineral properties has moreover been brought under the fierce glare of criticism. It is true that some managers have refused to be influenced by public opinion; but such cases are fortunately rare. As a rule, there is great improvement, and abuses—too long suffered—have been swept away. The meetings of mining proprietors, which have been recently held, have not only been harmonious, but extremely hopeful. The accounts presented have been creditable. Other meetings will follow next week, and West Kitty, it will be seen, is more than holding its own. The dividend will be sufficient to satisfy the most grasping. Trevaunance follows, and here the best report ever presented will be put before a fortunate proprietary. Polberro shareholders meet on the same day, and still further proofs will be forthcoming as to the merits of that very valuable property. Shareholders should attend these meetings. The system adopted by these companies must be the system adopted by all mines which desire to command confidence and credit. The investment portion of the community are in no humour to tolerate anything which favours concealment or dictation. "Improvement" is the order of the day, and, surely, if mining shareholders are true to themselves they will raise the value of their securities in many instances to the extent of 200 or 300 per cent. For shareholders in our well-managed and good mines I predict a rich harvest in the year 1886.

THE directors of the Tocopilla Copper Mining and Smelting Company (Limited), state that "in accordance with the intimation conveyed in the last yearly report, they have been endeavouring to arrange some plan by which the company's business could be carried on with the resources remaining at their disposal. After very carefully considering the character of the Carmelita Mine, the directors have arrived at the conclusion that, owing to the nature of the ground, which renders it necessary to use constant care to keep the mine in a proper condition, it would not be advisable to let it on tribute. The presence temporarily in England of Mr. W. H. Williams, who was formerly in the service of the vendors at Tocopilla during the successful period of their operations there, has enabled the directors to conclude an arrangement with him which they are hopeful, and indeed have every reason to believe, will lead to a great improvement in the results of the company's operations. They have appointed him to the post of their superintendent at Tocopilla, on terms that make his remuneration in a great measure dependent upon the success of the company. Mr. Williams has been for some years actively and successfully engaged in business in Tocopilla on his own account, during which time he has interested himself very much in this company's affairs, has a high opinion of its capabilities, and expresses himself confident of success; he is the British Vice-Consul at Tocopilla, and is well known as a gentleman of good position and business ability. The later information received from Tocopilla reports a considerable improvement in the condition and appearances of the Carmelita Mine, and thus increases the hope entertained by the directors that Mr. Williams's anticipations may be realised."

A "Poor Shareholder" writes—"The Copiapo Mining Company has just issued its report and accounts for the year ending June last, showing a profit of 10,823*l.*, of which amount it proposes to distribute to the shareholders 9955*l.*, or a dividend at the rate of 5*l.* 14s. 2d. per cent. per annum. A very satisfactory result, having regard to the fact that the price of copper during the 12 months averaged only 50*l.* per ton. The highest price being 54*l.* 10s. in August, 1884, and the lowest price in June, 1885, 43*l.* per ton. It is gratifying to the shareholders to observe that their property is once more estimated in the market at its par value, the shares having risen in a very short time from 2*l.* to 3*l.* 10s. My object in addressing you is to call attention to the very large per centage of the profits appropriated by the directors, who under the Articles of Association are allowed 700*l.* per annum. But a few years back, after a dividend of 14 per cent. had been declared, it was proposed at a general meeting of the shareholders that the directors' remuneration should be increased to 1000*l.* This was of course carried; but now that the dividend has fallen by about two-thirds it is scarcely decent for the board, whose duties are purely perfunctory, to draw the large fees which were voted in a time of prosperity. The case is aggravated by their charging the company not only with this excessive allowance, but also with income tax, making a total of 1033*l.* 16s., or more than 10 per cent. of the sum distributed among the shareholders." It is hoped that at the next meeting the proprietors will attend and rescind their former resolution, as the amount allowed by the Articles of Association—700*l.*, inclusive of income tax, is a very liberal remuneration to the board of a mining company paying a little over 5*l.* per cent.

THE GOLD AND DIAMOND FIELDS OF SOUTH AFRICA—No. XXIX.

BY THOMAS COLLINGWOOD KITTO, M.E.

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The general information given in these articles is of such a character that it ought to set every man (shareholder in Transvaal) who has any spirit in him enquiring into the truth or otherwise of the allegations which I have preferred against the vendors of Transvaal gold bubbles. I persistently maintain that there is no place in the Transvaal worth the name of a gold field, although there is a little gold there. There are a few places worth prospecting for those who care to run the risk; but there is certainly no place worth paying anything but a nominal price for. Every impartial person must acknowledge that my view with regard to the Transvaal has been abundantly proved by present results to be the correct one. It is all very well for my ninompoop opponents to say, "Kitto takes good care to let the world know that he is the only person who has read the Transvaal imposition aright." Of course I do—and why not? All the leading papers of the country do the same, and a day does not pass that the *Times*, *Standard*, *Telegraph*, and a host of others take credit for their prophetic writings. I have hitherto stood alone in the breach between the trickishness of the Transvaal and the British investor, and it is very gratifying to me to see so many of the South African papers who have so roundly abused me at last coming round to my views, and declaring that "Kitto was right after all, and that if they had followed his advice the credit of the country would not have been sacrificed to the cupidity of shuffling mountebanks." I hope the correctness of my views in the past will be taken as a guarantee of the *bona fides* of the warnings I am about to give for the future, but if there are any who say, "Kitto was right before, but he must be wrong this time," all I can say is they will pay dearly.

Why is it we hear so little now in the City about the untold millions of Transvaal gold awaiting only the application of the miners' pick to render it marketable? Why is it we hear no more of the innumerable koppies, each so much richer than the preceding one, that the riches of the last were infinitely beyond compute? Why is it that those organs which recommended the Transvaal as a proper field for British enterprise, and represented the so-called gold fields as the richest in the world, are now as silent as the grave? Why this sudden and ominous silence? It is the murky calm which precedes the terrible and devastating cyclone, and I strongly caution Englishmen against being drawn into its vortex.

I have received information from the Transvaal during the past week to the effect that there are several incubators of various patterns at work on the gold fields, hatching some very diabolical schemes, which at maturity are to be let loose on the English market. It is the death struggle; the last flare in the treacherous Transvaal golden candlestick, and once more I caution British investors against being misled by its deceptive flicker. The Transvaal is not a place for loyal Englishmen (under Boer rule), and any money spent in developing the mines there will be for ever lost. There are three or four places I could name where the little gold has been accumulating for some time past; it has been gathered from various sources, and at any cost. It is intended to send it to England as a wonderful surprise, for the purpose of trying to create another boom; then it will be vauntingly asked, What has Kitto and his following now to say against the Transvaal gold fields? But Kitto will answer beforehand, that it will be the consummation of one of the most diabolical frauds ever perpetrated on the British public, and before the boom has properly died away those who suffer themselves to be cajoled will discover to their sorrow that the last Transvaal fraud is worse than the first.

The Mac Mac and Grasskop diggings are situated nearly midway between Waterfall and Spitzkop. I shall not enter into details relative to Grasskop, as it might prejudice the interest of the diggers who have not yet been compensated, suffice it to say that in my opinion it is of no value to a company. At Mac Mac a party of Italians of whom Mr. Martignoni was the head, did moderately well while working out a few patches; a few other white men got payable gold, but the majority did not earn anything, and in mining parlance this place is said to have been "played out" long ago. The formation in which the little gold at Mac Mac has been found is clay-slate, which is traversed by numerous small seams of ferruginous quartz, which are more or less auriferous. Like all other abandoned diggings, traces and even moderate prospects of gold can be found in many places, and there may be a few places which very adventurous persons would prospect; but there is nothing I would prospect if it was in England instead of being in the Transvaal, and there is certainly nothing that any person ought to pay anything for.

From Mac Mac to Spitzkop the country is very interesting, although of very little value, and from a miner's point of view it is worth nothing. Spitzkop proper, is a beautifully conically-shaped hill, and the various gold diggings are scattered in different directions around its base. I noticed one place which, from a casual observation, looked very much like a strong permanent reef, and according to the samples tested from it would pay perhaps 15 per cent. per annum on a capital of 150,000*l.* But subsequently a few inexpensive trial pits sunk here and there proved it to be nothing but a superficial deposit of quartz, practically of no value to a company. Spitzkop is the most healthy and agreeable place to live in in all the so-called gold diggings; but the geological formation is much the same as the other diggings. The gold is found in small gash veins of ferruginous quartz, which traverse a clay-slate formation in almost every direction. The claims at Spitzkop, in which a little gold has been found, belonged—before the diggers' rights were confiscated—to Swan, Ferguson, Roberts, Doonan, Stanley, White, King, and some others. The gold found in these claims was of the most beautiful description, and, notwithstanding that, it was very thinly scattered and very difficult to get: when it had been collected together in the shape of ounces and pounds it looked very attractive indeed. But as soon as the cost of getting it was ascertained it lost its charm, because 10*l.* per ounce is a price which is only paid by vendors and company promoters. On the 8th of November, 1881, I was offered in proper form—the offer to remain open three months—the whole of what were said to be the best claims of Spitzkop for 9000*l.*, and a small interest in a company to be formed (the offer was made to me by the principals through one of the banks). Accompanying the offer were some parcels of gold and quartz said to have been found on the claims—20 ozs. 4 dwts. rough gold, 16 ozs. 14 dwts. rough gold, 6 ozs. 9 dwts. fine gold, and quartz, 5 ozs. 14 dwts. quartz and gold: total, 49 ozs. 1 dwt. It was valued at the sum of 171*l.* 13s. 6d. This was forwarded to me at Kimberley, and as I had no confidence in the property I declined the offer, and sent to Lydenburg a cheque for 200*l.* for the 49 ozs. of gold and quartz. I was on the point of selling the gold to the bank, when I received a letter demanding the return of the gold or 500*l.*, over 10*l.* an ounce. We sent back the gold and got our cheque returned, and I afterwards heard that it was sold for over 12*l.* per ounce, and represented more than one company. The original documents, receipts, &c., relating to this transaction are now before me. These facts I placed before the public in a somewhat different form through the *Mining Journal* in the early part of the year 1882. If these facts will not open the eyes of the public nothing will. I have on several occasions advised shareholders in Transvaal gold bubbles to institute enquiries as to what has become of the enormous sums set aside for compensating diggers, &c. If the shareholders have not taken the hint some vendors have, and are making themselves "square" in the event of an enquiry. At the rate they are going on it will cost them much more to square matters than they anticipated. It is amusing to find them toading to those whom they formerly bounced; and I can assure those who are selling themselves that, if they hold out, they will get their own price,

"Light come, light go.
They say, you know."

FOREIGN MINING AND METALLURGY.

The rate still nominally current at Paris for merchants' iron is 5*l.* 8s. per ton, but this quotation is subject to important reductions in the case of any transaction presenting anything like serious importance. The French Administration of Mines has just published some valuable statistics in illustration of the course taken by French metallurgical industry in 1883. As is usually the case, however, with French official returns, these statistics have run somewhat out of date. The consumption of iron minerals in France in 1883 is returned at 4,794,600 tons, this total being made up as follows:—Indigenous minerals, 3,193,400 tons; Algerian minerals, 308,300 tons; and foreign minerals, 1,292,000 tons. The aggregate production of the French blast-furnaces in 1883 is returned at 2,069,000 tons. The number of blast-furnaces is returned at 197, of which 143 were worked with coke, 38 with charcoal, and 16 with combustible of both classes. The principal producing department in 1883 was the Meurthe-et-Moselle, which, with 42 blast-furnaces, attained an output of 783,066 tons. The Nord came next with 14 blast-furnaces, and an output of 254,264 tons. The German iron trade has not improved. On the banks of the Rhine, and in Westphalia, a large number of blast-furnaces have been reducing their production of late; but, notwithstanding this, prices have shown weakness, and competition has continued keen. Some of the German rolling-mills are reducing their working staffs, and others have gone on short time. Several of the German steelworks are still well employed. The same observation applies to some of the works producing railway rolling-stock, for which some rather considerable orders have been given out of late.

In the Belgian Iron Trade prices still show great depression. Several establishments are working without any profit, and some are even carrying on business at a loss, so that it will not be at all astonishing if they suspend operations for a time. It is stated that the Sclessin Company is about to be reconstituted upon new bases, and with a new direction. The administration of the Belgian State Railways is about to introduce metallic sleepers upon a rather considerable scale. The first lot laid down will comprise 35,000 iron or rolled steel sleepers on the Post system, with the transversal profile adopted by the Netherlands Railway Company; this lot will represent a weight of 2625 tons. The second lot will comprise 35,000 iron or steel sleepers on the Post system (or 2625 tons), with the Braet transversal profile. The third lot will comprise 5000 iron or steel sleepers on the Bernard system; this lot will represent a weight of 525 tons. The cost of metallic sleepers being necessarily higher in the first instance they must establish their superiority by lasting longer, and by securing a reduction of maintenance charges. Madame Frédérix, of Liége, has secured an order for 23 iron bridges for the Dutch Indies. Some contracts for axles are also stated to have been secured, but at very low rates. An official return shows that the exports of steel rails from Belgium in the first nine months of this year amounted to 33,158 tons, as compared with 48,816 tons in the corresponding period of 1884. Iron rails were exported from Belgium in the first nine months of this year to the extent of 6943 tons, as compared with 14,598 tons in the corresponding period of 1884. The exports of plates in the first nine months of this year amounted to 24,199 tons.

There is little news to communicate with respect to the Belgian Coal Trade. The general tone of business has been weak, and prices have shown a downward tendency. In accordance with an appeal made to him by sundry colliery managers connected with the Charleroi district, the Belgian Minister of Railways has just reduced the charge for carrying coal from the Charleroi basin to Ganet to the extent of 1s. per ton. It is stated that the Anzin interest has reduced its prices 10d. per ton, in order to maintain the ground which it had gained. The number of trucks carrying coal and coke which passed over the Belgian State Railways in the week ending November 8, was 2855 less than in the corresponding week of 1884. This falling off is a striking illustration of the general want of activity in business. The imports of coal into Belgium in the first nine months of this year amounted to 902,364 tons as compared with 893,219 tons in the corresponding period of 1884. In these totals English coal figured for 208,556 tons and 197,208 tons respectively. The imports of coke into Belgium in the first nine months of this year were 17,704 tons, as compared with 25,680 tons in the corresponding period of 1884. The exports of coal from Belgium in the first nine months of this year were 3,081,287 tons, as compared with 3,330,293 tons in the corresponding period of 1884. In these totals the exports to France figured for 2,842,679 tons and 3,136,343 tons respectively. The exports of coke from Belgium in the first nine months of this year were 642,938 tons as compared with 638,521 tons in the corresponding period of 1884. The German coal trade has shown little change. The general tone of business has been tolerably firm.

A TELEGRAM has been received by the Marine Insurance Company from Captain Stevens, steamship Arabian, stating that the diver Lambert has recovered one box of gold from the mail steamer Alphonso XII., which belonged to the Lopez line, and, while on a voyage from Cadiz to Havana in February last, sank off Point Gando, Grand Canary, and that the recovery of the remainder is certain. The value of treasure is over 100,000*l.* The divers had to work in the great depth of 25½ fathoms. The upper and lower decks of the saloon had to be blown away so that the bullion room could be reached. Special diving apparatus had to be constructed for the work by Messrs. Siebe, Gorman, and Heinke. It way be remembered that Lambert is the diver who so courageously walked up the Severn Tunnel when it was flooded and succeeded in closing the iron door which enabled the pumps to overcome the volume of water

The India Office authorities recently gave an order for between 30,000 and 40,000 tons of steel sleepers to the Tredegar Iron Company. These sleepers, which are of a new and improved pattern, are intended to replace the wooden ones at present in use. The first consignment arrived at Newport a day or two ago since for shipment, and the first cargo will be dispatched in the course of next week. The manufacture of these sleepers is an entirely new industry to the locality, and will to a great extent alleviate the distress which would otherwise have been felt in the hill districts during the approaching winter.

Trade Reports.

CORNWALL.

November 19.—We need not go much if at all further than the elections and the disturbance caused by the general excitement of political parties to account for the slight fluctuations which have marked the course of the mining market. Cornwall has taken a firmer stand than has been shown elsewhere, and we believe there is a very general concurrence in the idea that better times are almost immediately at hand. The position which politics occupy in the relation is very well shown by references made at recent mine meetings. We cannot sympathise with some of the opinions expressed at Wheal Agar account. Where is the place to ventilate a charge of political intimidation if not at a meeting, and who are the people to do it if not the shareholders? The man who attempts to stiffle enquiry exposes himself to the suspicion of approving that which is protested against, and when there is nothing wrong there certainly can be no objection to investigation. Moreover, if a charge is unproved the effect recoils upon those who make it. We do hope that within the coming fortnight there will be more heard of this sort of thing. We do not believe that in the long run any political party would gain by it, and it is quite certain that mining all round must suffer.

One of the points to which Mr. Frecheville referred in his recent paper, and which demands special attention from practical miners, is the adoption of an improved system of stamping. In fact, we question very much whether there is any department of operative mining which has more signally failed, as a whole, to move with the times. It is quite three centuries since there have been any modification in principle in this particular. The original method of reducing tinstuff seems to have been to pound it by hand with stone boulders in hollows worn or cut in the rock, and there are a good many traces of this method of operations still extant. To that apparently succeeded the crazing-mills, in which the stuff was literally ground or pulverised between two stones, the lower having a hollow in which the upper worked, and provision being made for the discharge of the reduced stuff by water. Not a few remnants of this method of operation are still in existence, and the old grinding stones have more than once mightily puzzled our antiquaries. It was in the time of Queen Elizabeth that stamps, or as they were originally called "knocking mills," were introduced from Germany. They were then beams of wood shod with iron, but they were operated in precisely the same manner that they are at present; they owed then as they owe now all their force to the single operation of gravity; and, in fact, the only accepted changes that have been made are the construction of the stamp itself of iron, and its operation by steam instead of water. The stamps have been made more powerful, and more certain in their action, but there has really been no change in the principle—of course, we mean in a practical point of view.

Of late years from time to time it is, however, true that efforts have been made to improve stamping apparatus by the direct application of power; but the difficulties have in most cases proved insurmountable, and the only mining engineer who has overcome them is Mr. Husband. It has been proven over and over again that in his stamps Cornwall has an apparatus that occupies far less space than the best of the ordinary "fire stamps;" that does more work with less power; and that, moreover, is far more economical in the matter of wear and tear, especially in the expenditure of the stamp-head. Another point of considerable importance is the fact that this form of stamp adapts itself far better than the ordinary to the improved methods of subsequent treatment of the stuff. Surely the time cannot be far distant when we shall see a decided move in this direction.

NORTH AND SOUTH STAFFORDSHIRE.

November 19.—Coalmasters this week speak with more satisfaction of the immediate prospects than has been noticed for several weeks past. The change in their favour which has taken place in the atmospherical conditions is giving them a firmer hold upon the market in the matter of prices, alike for manufacturing and domestic fuels. Boats are arriving at the collieries with more freedom, and merchants' demands by rail are also steadily on the increase. Competition for the London trade in house coals is this season severe, nevertheless this district stands a good chance of getting its usual respectable average of the trade. Orders for pig-iron are not considerable at date, though consumers are disposed to give out contracts for deliveries throughout 1886 if they can do so at present prices. And they stated upon 'Change this afternoon in Birmingham that such offers by them were being accepted in some cases. Hematites are quoted 52s. 6d. to 53s., and occasionally as high as 54s., while native all-mine pigs are generally speaking 55s. for hot-blast sorts, and 75s. for cold blast. Part-mine pigs are abundant at 40s. to 45s., and cinder pigs 32s. 6d. upwards. Midland pigs are unchanged in price. No increase of buying appears in the finished iron branch, and some of the works have difficulty in keeping going even half time. The General Elections, and the early necessity for stock taking, are factors in influencing buyers to keep out of the market. Sheets (doubles) are 6*l.* 12s. 6d. to 6*l.* 15s., and lattens 7*l.* 15s. Tank-plates are 6*l.* 15s. to 7*l.*, and boiler-plates 7*l.* 10s. to 8*l.* 10s. Bars same as last week.

At a special sitting, on Friday, of the arbitrators appointed under the Mines Drainage Acts at the offices of the Mines Drainage Commissioners, Wolverhampton, a draft award of 3d. per ton on fire-clay and 6d. per ton on coal, ironstone, and other minerals raised during the ensuing year in the Old Hill district was made. The same graduations made last year were again allowed.

The announcement has been made that a rebate of 9d. per ton will be allowed on the railway rate on coke carried from North Staffordshire into the South Staffordshire district. We understand that a reduction in the ironstone rate is also to be made, but the amount is not yet decided upon.

SOUTH WALES.

November 19.—The shipments of coal at the principal South Wales ports in the month of October were as follow:—Cardiff, 593,515 tons foreign and 94,300 coastwise; patent fuel, 16,049; coke, 2128. Newport, 138,963 tons foreign and 85,437 coastwise; Swansea, 73,266 tons foreign and 50,392 coastwise, with 16,120 tons patent fuel. Last week Cardiff sent away 147,424 tons foreign and about 25,000 coastwise; Newport, 30,852 tons foreign and 24,870 coastwise; Swansea, 11,438 tons foreign and about 10,000 coastwise, with 1751 tons patent fuel. Trade at Cardiff and Newport is fairly active, but at Swansea business is very slack. House coal is in rather better demand, and both small and steam coal and patent fuel are in good request. The coal trade between South Wales and London was very good in the month of October. The Midland took 1100 tons from Aberdare, besides several lots from Quaker's yard, Abercwmboy, and Glyn-Neath. The London and North Western took 4000 tons from Aberdare, 2400 from Cwmdare, 1400 from Bwllfa, and 900 from Fforchaman. The Great Western carried 6000 from Aberdare, 3600 from Nixon's Navigation, 3100 from Bwllfa, 2900 from Fforchaman, 2500 from Aberaman, 2100 from Cwmpark, and 1700 from the Plymouth Company. Some

amounts were also sent from Ebbw Vale, Cymmer, and Resolven. The amount of iron and steel exported in the month of October from Cardiff was 9540 tons; Newport, 4482; Swansea, 453. Last week Cardiff sent away 140, but none from Newport. Iron ore has arrived at Cardiff to the extent of 7574 tons from Bilbao, and 5083 from other places. Newport received 9127 tons from Bilbao, and 4007 from other places. The tin-plate trade is again in difficulties. There are only 28,000 boxes less in stock now than when the combination to reduce make took place. If masters will not keep faith prices cannot rise.

LANCASHIRE.

November 19.—A little more animation has been stimulated in the Iron Market here by the recent advance in warrants at Glasgow, which has suggested the possibility of another rush of buying, but any actually increased business doing has been confined chiefly to outside brands of pig-iron, and in North Country iron forward offers have been made pretty freely on the basis of 40s. 10d. net cash for good named brands of Middlesborough foundry, delivered equal to Manchester. There is, however, no improvement in the actual requirements of consumers in this district, and neither local nor district brands have met with any better sale. For Lancashire pig-iron makers still quote 38s. 6d. to 39s., less 2½ delivered equal to Manchester, and district brands range from 38s. and 38s. 6d. to 39s. and 39s. 6d., less 2½ delivered here, but there is practically little or no buying going on at any of these figures, and it is only where consumers have to give out orders for absolute requirements that offers are made at very low figures. For hematites there has been more enquiry, and an immense weight of business has been doing; but prices here do not respond to the advance which makers have been able to get on recent large sales in other districts, the maximum figure obtainable from buyers in this market being about 51s. 6d. to 52s., less 2½, for good foundry brands delivered equal to Manchester. Business in the manufactured iron trade continues very slow, and even where makers have still a considerable weight of orders on their books they are unable to get their customers to take delivery, and there is consequently a general anxiety to secure immediate specifications to keep works going that leads to very low figures being taken to effect sales for prompt delivery. Nominally 5*l.* 5s. is still the quoted price for bars delivered into this district; but 5*l.* 2s. 6d. is being taken in most instances; hoops average 5*l.* 12s. 6d.; local made sheets, 6*l.* 15s.; and Staffordshire qualities, 7*l.* to 7*l.* 2s. 6d. per ton, delivered here.

General depression still characterises most branches of the Engineering Trades, and where activity is maintained, it is on old orders, which, as they are worked off, are only being replaced to a very limited extent, and the competition for any new work giving out is excessively keen.

There is no material change to report in the condition of the Coal Trade. House fire coals continue in good demand, but other sorts still move off only slowly, and, so far as requirements for iron making, steam, and other manufacturing purposes are concerned, there is no present indication of any improved demand coming forward. In the house-fire coal trade, although there is no actual pressure for supplies, the demand is sufficient to keep pits going full time, and prices are steady at full rates, best Wigan Arley averaging 9s. to 9s. 6d., seconds and Pemberton Four-feet 7s. 6d. to 8s., and common house-fire coals about 6s. per ton. In the common coal trade, except where this class of coal is going for house-fire purposes or for shipment, the demand is extremely dull, 5s. 6d. per ton at the pit represents the full average price that is being got. Engine fuel is also in poor demand, and low in price, burgy at the pit mouth averaging 4s. 6d. to 4s. 9d., best slack 3s. 6d. to 4s., and common sorts 2s. 6d. to 3s. per ton.

In the Shipping Trade there has been decided improvement. A large weight of business has been doing recently, and in many instances advanced prices are being quoted, orders being now difficult to place at anything under 7s. 3d. to 7s. 6d. per ton delivered at the High Level, Liverpool, or the Garston Docks.

The notices for a 10 per cent. advance in wages have this week been served upon the coalowners in the various districts, but so far as I can gather there is no intention of conceding the demand.

DERBYSHIRE AND YORKSHIRE.

November 19.—Very little change has taken place in the state of the Coal or Iron Trades in the Midland field since last notice. Some thousands of notice-papers have been given to the miners to hand to their employers to-day and to-morrow, when they are paid. These papers are to the effect that if a 10 per cent. advance is not conceded, the existing agreement will be dissolved, and the tools brought out of the pit. The employers have, so far, shown no disposition to give way, and this, it may be said, is the case, not only in Derbyshire, but in the West Riding as well. The state of trade is such that although the miners are well employed, yet no advance can be made in the price of coal which is most plentiful in the London and other leading markets. Indeed, so far as London is concerned, house coal is said to have become almost a drug, and so long as this is the case there is no likelihood of prices going up. As it is, however, several of the leading collieries in Derbyshire and Nottinghamshire have sent a large quantity of coal to the Metropolis, Clay Cross alone having sent upwards of 1000 tons a day, whilst an increased tonnage has also been forwarded from Langley Mill, Grassmoor, Eckington, Blackwell, Staveley, and Boythorpe. The collieries in the West Riding have also done very well of late as regards the Metropolis, more especially in gas coal. Steam coal is not in such good request as what it was, a falling-off in the exports having taken place.

The miners in Derbyshire and the West Riding of Yorkshire are now much exercised over the elections, as they have candidates of their own, and, singular to say, both running against large colliery proprietors. Mr. Haslam, the miners' agent for Derbyshire, has pitted himself against the late member, Mr. Barnes, the principal owner of the Grassmoor Collieries, amongst the largest in the Derbyshire district. Mr. Haslam has the desire, of course, to reside in London at least six months in the year, and, it is said, only asks 300*l.* a year for so doing, and this some of the miners have promised to subscribe. Mr. Ben. Pickard, the principal secretary of the Yorkshire Miners' Association, residing at Barnsley, is a candidate for the Normanton Division of the West Riding, having for an opponent Major Charlesworth, one of the largest colliery-owners in Yorkshire. It is understood that Mr. Pickard values his services at 500*l.* a year, although some of the miners consider the figure too high. But it is only natural that the two sides should not altogether agree, when one has to pay, and the other receive. But it is not quite certain as to either of the two labour candidates being returned, sanguine as they are. Mr. Pickard has the advantage of having the support of the assembled heads of the Liberal party, having put himself forward without consulting them, so that to prevent a split they were obliged to make a virtue of necessity, and accept the miners' agent. The miners it may be said are a numerous body in the Normanton district, but it is by no means certain that they will vote *en masse* for Mr. Pickard.

In some departments of the Sheffield trades there has been some little improvement, which will be much appreciated now that the Christmas holidays are so near at hand. Some good orders are now in hand for rails, so that the production of Bessemer has so far been well maintained, but there is scarcely so much doing in spring steel or tyres and axles. There is however, a fair turn out of railway wheels and axles, combined for mining purposes, mining tools, including drills, picks, wedges, and hammers. Not much change has taken place with respect to crucible steel, which has been rather quiet for some time past, but a change for the better is now looked forward to, seeing that the Government have just given out some good contracts for torpedo and other boats, in which steel will be the principal material employed. There is every appearance that the new year will see marked activity in the shipbuilding yards on the Clyde and the North of England, and this cannot fail to be of advantage to our steelmakers. It also appears that there is no necessity for ordering steel railway sleepers from abroad, for an establishment at home has taken an order for 250 tons from the Midland Railway Company. This is only the beginning of what promises to be a new and valuable phase of the steel trade, for if the various companies decide upon substituting steel for wood—as they are most likely to do—all the works in the kingdom would be kept busy for a very long time. The cutlery branches have improved a little since last notice, orders having come in from Australia, the Continent, and other places, and the employers have shown every disposition, even to the extent of stocking, to find their hands plenty to do up to Christmas, when, of course, there will be a fortnight's holiday. The mills are not running so well as what they did, especially as regards ordinary plates, but there has been a steady output of hoop-iron, a good deal being for exportation. An improvement, however, has taken place with respect to razors and scissors, articles in which the German manufacturers have hitherto been able to successfully compete in our own markets with Sheffield houses, whose marks and brands they are not above putting on their own goods.

TYNE AND WEAR.

November 19.—There is little change in the state of the Coal Trade here since our last report. The demand for steam coal continues moderate at late prices, which are certainly low. Best steam coal is from 8s. 3d. to 8s. 6d. per ton; steam small coals continue scarce and bring from 3s. 6d. to 4s. 6d. per ton. A contract for coals was got on the Tyne on Monday for the delivery of 20,000 tons in six weeks at Constantinople. Gas coals are in greater demand, but the demand for these coals is not so strong as in former seasons. The demand for home coals, mainly from the Wear, is improving as the winter season advances. The demand for nut coals and bunker coals on the Wear is improving; this is caused partly by the scarcity of Northumberland steam small coals. House coals are from 9s. to 11s. 6d. per ton; screened nuts, 7s. to 7s. 6d. There is now a considerable demand for unscreened bunker coals, which bring from 5s. 6d. to 7s. per ton. The demand for coke for export continues good, but the inland demand for ironworks is still deficient. About eight months ago a number of men were discharged at the Lady Ann Pit, one of the works belonging to the Earl of Durham, owing to the coals then produced not being in much demand, but since that time the shaft has been sunk to the Hutton seam, and as the coal in that seam is found to be of a very superior class, and as the demand for this coal is expected to be large, it is anticipated that a large number of additional men will be employed. The shipments of coal and coke at Tyne Dock for the week ending the 14th inst. were as follows:—Coals, 97,879 tons, a decrease of 11,763 tons on the corresponding week last year; coke, 8293 tons, an increase of 3548 tons. Iron shipbuilding continues, with few exceptions, in a very depressed state on these rivers; and, consequently, marine engineers are badly employed. Engineers and boiler builders generally are also very moderately employed. With the exception of the Elswick Works, most of the great works are very dull. At the Jarrow Works considerable depression is felt, but as the steelworks there are approaching completion it is expected that when they are got into full swing, there will be a considerable increase in the number of men employed. The chemical trade has been flat of late, but increased business has been done during the past few days, and improved rates have been obtained for some of the leading products, and there is more enquiry. Soda crystals are 2*l.* 5s. 3d., and bleaching powder is 6*l.* 2s. 6d. The Newcastle Chemical Company are now producing salt from their works on the Tees, and it is expected that they will be able to produce sufficient salt to supply their works on the Tyne entirely with the salt required during the ensuing year. The pig-iron market for week ending on Saturday has shown more tendency to firmness owing to the advance of Scotch pig-iron, and a better feeling has prevailed with respect to iron for next year's delivery; the men having accepted the reduction of 2½ per cent. has had some effect. The shipments have improved somewhat, but they are still below the average. The shipments to Scotland and the Continent have fallen off considerably. There has, however, been some shipments of pig-iron from the Tyne to America. Connal's warrant stores at Middlesborough continue to increase at the rate of about 1400 tons per week. There is little change in prices as yet; warrants are 32s. 6d., while ordinary No. 3 pig-iron can scarcely make 32s. per ton. There is some speculation in buying for next year. There is a movement in iron, but it may possibly be only temporary as has been experienced often lately.

The Manufactured Iron Trade gets worse, it is in a very stagnant state. There is no material change in the steel trade. Steel plates are 6*l.* 10s. per ton. There is a little more demand for manufacturing coals. Coke is unchanged. At Middlesborough, on Tuesday, the market was well attended, and the firmer feeling of last week was confirmed there by higher prices current and increased business; an advance of 3d. per ton on No. 3 pig-iron was made from last week. The better accounts from America had a good effect, and also the increased value of Scotch iron. The shipments of pig-iron have increased considerably, and for the week ending Tuesday were 21,200 tons. There has been further shipments of steel rails to India. The stock in Connal's stores of pig-iron is now 116,523 tons. There is a little more enquiry for coke.

The war news from the East has caused some excitement on the Newcastle Exchange, and increased freights are asked for shipments to that quarter. There is some increase in the demand for ships. Some progress has been made with the proposed Steamship Managing Owners' Association which was the outcome of the meeting in September, at York. Branches have now been formed for Newcastle and the Tyne, Sunderland, Hartlepool, Middlesborough, Hull, London, &c. Support is now given by the managers of from 850 to 900 steamers. Rules are being drafted, and a committee is expected to meet shortly, and then definite action will be taken. It is a hard task to unite the shipping interest, but it is expected that good work will be accomplished in charter reforms and other matters when the society is organised.

The Tyne Commissioners will apply for a new Act in the next Parliament to enable them to borrow in addition to their present borrowing powers 300,000*l.* for the purpose of completing the improvements which have been so long in progress on the Tyne. Those great improvements originally designed by Mr. Ure, chief engineer to the Tyne Commissioners have been carried out so far with the greatest success. The river and the entrance to it has been improved vastly in every part, and the average depth of water has been greatly increased from the sea upwards to a distance considerably above the Tyne bridges. The Tyne piers have been extended a great distance seawards, but they must be yet extended a considerable distance to complete the original designs, and when completed the Tyne will be a fine harbour of refuge for the North-East Coast. From the Tyne mouth, as remarked above, the depth of the river has been greatly increased, and awkward bends have also been removed to a great extent. Above the Tyne bridges the most important work has been the removal of the large island known as the King's Meadows, and this work is now almost accomplished.

WATSON BROTHERS MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.,
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

The Weardale Mines occupy an area of about 85 square miles, and are those formerly held from the Ecclesiastical Commissioners by Mr. W. B. Beaumont, M.P. They have been worked for about 300 years, and made enormous profits. The ores are rich, and said to contain over 80 ozs. of silver per ton. The present company, in 50,000 shares of 4*l.* each, with 1*l.* 5s. paid, hold the mines for 60 years from the 1st of July, 1833, and are selling from the mines at present worked about 200 tons of pig-lead per month. Any further information required by our correspondent may be obtained at the office of the company. One of the objects of the company was to organise other companies to work portions of the large grant they have, in order to concentrate the energies of the company in the development of the mines now in work.

A writer in the *West Briton* upon tin dressing says—"I was rather surprised to find stamps being erected at Metal and Flow to stamp 'roughs' when a pulveriser would give perhaps double the results." The fact is these stamps were included in the purchase of the engine; they cost very little to put up, were useless lying about, and will now at scarcely any additional expense return about 1 ton of tin a month. We have five pulverisers at work, and are selling tin about enough to meet current costs. But machinery and dressing-floors cost money, and many large shareholders think it would be better to make a call of 1s. per share to pay for the extra pulverisers than leave them to be paid for out of profits. We said, originally, that 10 pulverisers would give us a profit of about 300*l.* per month, after paying the cost of sinking Metal shaft; the five now at work have cost more than we thought, and we want five more, especially as the Flow is turning out all that we were ever told of it. In further reference to the stamps Captain Argall writes us confirming what we have said above, and adds the stamps may soon be wanted for lodestuff, of which there is now a large quantity on the mine that will do to mix with sand. Besides, we are looking for a good discovery of tin in the Metal lode in the shaft, which is being sunk vigorously, with every appearance of success shortly. This is the grand speculation of the company; the Flow is a certainty, and will pay all costs of the speculation, and leave profits according to the number of pulverisers put up. The sale of tin this month realised 145*l.* 2s. 6d., and made a profit on the current costs, although, as the agent writes us, not an ounce of tin has yet been sold from the 50 frames that have been for some time in course of erection. The next sale, he adds, will be better, and after Christmas will go on increasing with lessened expense.

The tin sale at East Blue Hills realised 274*l.* 4s. 3d. for the month; the best parcel brought 51*l.* 12s. 6d. per ton. The quantity was less than we expected owing to one of the water-wheels at the stamps getting disabled. In regard to cutting the lode in bottom of shaft, telegraphed last week, the purser writes us—"Capt. Bennetts put the shaftmen to cut in yesterday and ascertain position and quality of lode. They have just pricked it, and brought out some rich stones of tin, mixed with copper and jack, just as it was when cut into at the 20. We are very much pleased with it."

When we introduced Wheal Uny and offered to form a company to work it we did so with the distinct understanding that all should go in alike, that no premium or promotion money should be charged, and that every share should, in the first instance, be offered to the old shareholders in the mine. This would have been carried out but for the proceedings of Mr. Vyner, and it would have been a good thing for all parties if we had been allowed to carry out the plan. We have the same interest in the mine now that we had then.

At Cook's Kitchen the shaft has been sunk 6 fms. under the 368, and is nearing the long expected junction of lodes, and as it approaches the junction the lode is improving, and in the opinion of agents in the locality that when the two lodes join, a course of tin will be found similar to what occurred at Dolcoath under the same circumstances. In driving the 368 east the temperature rose to 100 deg. Fahr. A higher temperature we believe, than ever known before in a tin mine. This heat has now been reduced by the holing of a winze.

COMMERCIAL FAILURES.

The number of failures in England and Wales gazetted during the week ending Saturday, November 14th, was 84. The number in the corresponding week of last year was 77, showing an increase of 7, being a net increase in 1885, to date, of 609.

The failures were distributed amongst the following trades, and, for comparison, we give the number in each in the corresponding weeks in 1883 and 1884:—

	1885.	1884.	1883.
Building trades	11	6	19
Chemists and druggists	—	2	3
Coal and mining trades	2	1	2
Corn, cattle, and seed trades	4	2	8
Drapery, silk, and woollen trades	11	6	11
Earthenware trades	—	—	2
Farmers	5	3	9
Furniture and upholstery trades	2	2	4
Grocery and provision trades	11	15	53
Hardware and metal trades	3	1	5
Iron and steel trades	1	—	7
Jewellery and fancy trades	5	4	6
Leather and coach trades	7	9	5
Merchants, brokers, and agents	2	4	18
Printing and stationery trades	4	4	1
Wine, spirit, and beer trades	7	7	19
Miscellaneous	9	11	19
Totals for England and Wales	84	77	191
Scotland	21	27	20
Ireland	5	2	4
Totals for United Kingdom	110	106	215

The number of Bills of Sale published in England and Wales for the week ending November 14 was 259. The number in the corresponding week of last year was 239, showing an increase of 20, being a net increase in 1885, to date, of 554. The number published in Ireland for the same week was 12. The number in the corresponding week of last year was 13, showing a decrease of 1, being a net increase in 1885, to date, of 53.—*Kemp's Mercantile Gazette.*

MANCHESTER ASSOCIATION OF EMPLOYERS AND FOREMEN.

IMPROVEMENT IN TOOL-ROOM APPLIANCES.

The usual fortnightly meeting of members of the above Association was held on Saturday in the Manchester Technical School, Mr. THOMAS ASHBURY, C.E., occupying the chair. A paper "On Improvements in Tool-room Appliances," was read by Mr. GEORGE RICHARDS, of Broadheath. The subject was, he said, not a new one, but at the same time, from observations in numerous engineering works, he had come to the conclusion that the matter of tool-rooms was more honoured in the name than in the practice, and it was his object to point out the importance of tool-rooms as an adjunct to a system of manufacture in such a form that the question might naturally be asked, why there had been so little done towards their adoption? The present undeveloped condition of tool-rooms was due to the fact that at most works in this country they prepared their own tools, and did not purchase them. Articles which were brought into the works through orders given, and invoices for them passing through the offices were apt to come more vividly before the proprietors, and were more likely to be classified and taken care of; but where small tools were made as wanted, they were absorbed, as it were, in the bulk of the work being produced, and as no separate account was kept of them they were charged into the expense account. There was something anomalous in the present state of machine manufacture, with its competitive nature, in the general want of a distinct place for making the small tools used in the various machines. Whenever the subject was referred to it was suggested that only in large works could such a luxury be afforded, but he contended that whatever number of machines were employed some steps should be taken towards carrying out a plan of making it the special business of a skilled workman to prepare all the small tools, gauges, drilling templates, &c., used by fitters or machinemen. Of course, it was necessary that all advanced ideas of shop practice should be based on the idea of economy, and it was only upon this score that they were to be advocated. It was difficult to arrive at the cost when the time of the men was occupied, and in many cases machines which should be otherwise engaged were indiscriminately employed in making and repairing tools; but any plan by which the work could be done systematically and methodically must mean a saving. Further than this it was generally difficult to find a workman able to carry out instructions about preparing tools, simply because he had not enough of the work continuously. A good apprentice who had worked for a short time on the accurate work of a tool-room, and become accustomed to standard sizes, and the intricacies of working and hardening steel, might be able to produce a larger amount of more satisfactory work than an ordinary fitter, and it was certain that constant practice of this kind gave a special skill, which was not to be found generally amongst workmen. Then, again, there was an important advantage that in having a man specially skilled in this class of work to make these tools and appliances, they were much better made; he acquired a special skill in designing and making tools for expediting work, and his reputation was identified with the work he produced; but where the tools were made indiscriminately by anyone in the shop, no one had any special interest in the matter, and the tools, the making of which was a secondary matter, lacked character, so to speak. Many shops that before the advent of a toolmaker could count up time equal to that of two or three men constantly engaged in making tools, found that upon employing a skilled toolmaker, and giving him the necessary machinery to work with, he not only made all the tools, but devised special ones for lessening time on many classes of work. By putting together the processes of making tools in the hands of one or two men, and giving them a small outfit of tools the result would be surprising in showing how nearly a constant amount of work might be found. This fact, however, was generally lost sight of when tools were made as they were wanted by any fitter who might happen to be most at liberty. The plant requisite for the equipment of a tool room could be provided at a very moderate cost, and at what was really a very small investment compared with the saving effected by such a department being ready at all times to supply tools that might be wanted, and with a good man always at hand to repair them when this was required, which would be the means of saving the time not of one man only but frequently of many. Then, again, the tools, instead of being scattered round the works, as was often the case, could be collected together under the charge of one man, and the workmen could be more readily made responsible for any damage to the tools. Mr. Richards then proceeded to describe the requisite equipment of a tool-room, and dealt especially with the necessity for introducing a less expensive class of appliances having reference to standard sizes. Upon this point he urged that as the great expense of gauges, measuring machines, &c., of the highest class for ensuring accuracy in workmanship had tended to retard their general use it was essential that appliances of this description which would ensure sufficient accuracy for all general requirements should be supplied. The manufacture of such appliances at a low price was already being carried out in America, where he and his father had established companies for the purpose, and where what was known as the "Richards" system was very largely in use. So far as he knew no such manufacture had yet been attempted in this country; but the company at Broadheath, near Manchester, with which he was connected, had in preparation a plant of machinery for a similar manufacture. Mr. Richards then described, with the aid of diagrams, a number of appliances of this class which they were now making.

In the discussion which followed upon the paper, Mr. LEWIS (W. Turner and Co.) expressed the opinion that a precise system might be carried too far. In some works engaged chiefly on specialities, system was, of course, essential, but where they had a great variety of work to carry out the attempt to follow one precise system, would, in his opinion, result in loss.

Mr. RAWLINSON (Kendal and Gent), said his impression of the paper was that Mr. Richards had been travelling over well-beaten ground, and the whole of the ground had long since been travelled over by Sir Joseph Whitworth, at great expense. Mr. Richards had laid bold of the characteristic principles worked out by Sir Joseph Whitworth, and was simply putting these before the public in a cheap form.

Mr. BATES (Hulse and Co.) agreed with Mr. Rawlinson in what he had said. Appliances similar to those which had been described had been in use for 35 years.

The CHAIRMAN remarked that the subject was an important one; accuracy was becoming more and more the order of the day, and the difference between good work and bad work was very often a question of accuracy. If any method was introduced by which they could secure greater accuracy it would be a benefit. Although they could not always get a cheap and, at the same time, a very elaborate thing combined, yet any improvement upon the ordinary run of work they ought to hail with satisfaction.

Mr. WILLIAM CRAVEN (Craven Brothers) said that personally he felt grateful for the very able manner in which Mr. Richards had brought his paper before them, because he believed that papers of this kind had not only a tendency to produce better work, but they helped to disseminate knowledge amongst one another. He had great pleasure in moving a vote of thanks for the paper.——This was seconded by Mr. RAWLINSON, and unanimously agreed to.

Mr. RICHARDS briefly acknowledged the vote of thanks, and, in replying upon the discussion, said the object of his paper had been simply to urge the importance of tool-rooms equipped with the requisite appliances, as this was one of the essential requisites of English works.

HOLLOWAY'S PILLS.—IMPORTANT FOR THE DELICATE.—It is difficult to determine which is the more trying to the human constitution, the damp, cold days of autumn and winter, or the keen, dry, easterly winds of spring. Throughout the seasons good health may be maintained by occasional doses of Holloway's pills, which purify the blood and act as wholesome stimulants to the skin, stomach, liver, bowels, and kidneys. This celebrated medicine needs but a fair trial to convince the ailing and desponding that it will restore and cheer them without danger, pain, or inconvenience. No family should be without a supply of Holloway's pills and ointment, as by a timely recourse to them the first erring function may be reclaimed, suffering may be spared, and life saved.

Provincial Stock and Share Markets.

CORNISH MINE SHARE MARKET.—Mr. S. J. DAVEY, mine share-dealer, Redruth, writes under date November 19:—We have had a better demand for shares in our market this week, and Carn Brea advanced ¾, Dolcoath 3l., East Pool 2l., South Frances ¾, Tincroft, 1l., West Kitty ½, and Grenville 1l. Following are prices:—Blue Hills, 13s. to 15s.; Carn Brea, 3½ to 4; Cook's Kitchen, 9½ to 10; Crebor, 28s. to 30s. Dolcoath, 76 to 77; East Blue Hills, 31s. to 33s.; East Pool, 48 to 48½; Killifreth, 11s. to 13s.; New Cook's Kitchen, ¼ to ⅜; New Kitty, 31s to 33s.; Pedn-an-drea, ¾ to ⅞; Polberro, 1⅞ to 2⅛; South Condurrow, 6 to 6½; South Crofty, 7 to 7¼; South Wheal Frances, 8 to 8⅛; Tincroft, 6½ to 7; Trevaunance, 2¼ to 2⅝; West Basset, 2¼ to 3; West Frances, 8⅜ to 8⅝; West Godolphin 1 to 1¼; West Kitty, 8¼ to 8½; West Polbreen, 12s. to 14s.; West Wheal Seton, 4¼ to 5; Wheal Agar, 19¾ to 20; Wheal Basset, 7 to 7⅛; Wheal Grenville, 15 to 16; Wheal Kitty (St. Agnes), ⅜ to ¾.

— Mr. M. W. BAWDEN, Liskeard, writes under date November 19:—The mining market has been moderately active, with a fair enquiry for good stock at an advance and holders firm. Wheal Crebor advanced to 25s. buyers, on the improved price for copper, and improvement in the 156 fm. or bottom level. Following are prices:—Anderton United, ¼ to ⅜; Bedford United, ⅛ to ⅜; Blue Hills, 15s. to 16s.; Carn Brea, 3 to 3¼; Cook's Kitchen, 10 to 10⅛; Dolcoath, 75 to 75½; Devon Consols, 2 to 2⅛; East Blue Hills, 1⅛ to 1¼; East Pool, 47⅛ to 48; Gunnislake (Clitters), 4s. to 5s.; Killifreth, 11s. to 12s.; Marke Valley, 3s. to 4s.; New Kitty, 1⅛ to 1⅜; Pedn-an-drea United, 1 to 1⅛; Phœnix United, 1¾ to 2; Prince of Wales, 7s. to 8s.; South Condurrow, 6 to 6½; South Crofty, 7 to 7¼; South Frances, 7¾ to 8; Tincroft, 6¾ to 6⅝; Trevaunance Consols, 2 to 2⅛; West Basset, 2¾ to 3; West Frances, 8½ to 8¾; West Kitty, 8 to 8¼; West Phœnix, 4s. to 5s.; West Seton, 4 to 4¼; Wheal Agar, 19⅛ to 19¾; Wheal Basset, 7 to 7¼; Wheal Crebor, 1⅛ to 1⅛; Wheal Grenville, 15 to 15⅛; Wheal Kitty, 14s. to 15s.; Wheal Peevor, ⅛ to ¼.

— Messrs. ABBOTT and WICKETT, stock and share brokers, Redruth, write under date November 19:—The market has been strong this week, and a large business has been done, and the leading shares have advanced considerably, and close at best. The shares in several progressive mines have received attention. Foreign tin has advanced 55s. this week. Closing quotations herewith:—Blue Hills, ¾ to 1; Carn Brea, 3½ to 4; Cook's Kitchen, 9½ to 10; Dolcoath, 75½ to 76½; East Blue Hills, 1⅛ to 1¾; East Pool, 47⅛ to 48; Killifreth, 11s. to 13s.; New Kitty, 1½ to 1¾; Pedn-an-drea, ⅞ to 1½; Prince Royal, 4s. to 6s.; South Condurrow, 6 to 6½; South Crofty, 6¾ to 7¼; South Frances, 7¾ to 8; Tincroft, 4⅜ to 6⅝; West Basset, 2½ to 3; West Kitty, 8¼ to 8½; West Frances, 8½ to 8¾; West Seton, 3½ to 4; Wheal Agar, 19½ to 20; Wheal Basset, 6¾ to 7¼; Wheal Grenville, 15 to 15½; Wheal Kitty, ½ to ¾. Tin, 94l.

— Mr. JOHN CARTER, mine sharedealer, Camborne, writes under date November 19:—The advance in tin has caused a good demand in this market for our leading mines; but the market itself is small at present, and transactions are restricted in consequence. Dolcoaths, East Pools, West Kittys, West Frances, Carn Breas, Tincroft, and Killifreth. Closing prices are annexed:—Blue Hills, 12s. 6d. to 15s.; Cook's Kitchen, 9 to 10; Dolcoath, 76½ to 77; East Blue Hills, 30s. to 32s. 6d.; East Pool, 48 to 48⅛; Killifreth, 12s. to 14s.; New Cook's Kitchen, ⅛ to ¼; New Kitty, 1½ to 1¾; Pedn-an-drea, ⅞ to 1; South Condurrow, 5¾ to 6; South Crofty, 7 to 7¼; South Frances, 7⅜ to 8½; Tincroft, 6½ to 6⅝; Trevaunance, 2¼ to 2½; West Basset, 2¼ to 2⅝; West Frances, 8½ to 8¾; West Kitty, 8½ to 8⅝; West Seton, 4 to 4¼; Wheal Agar, 19¼ to 20; Wheal Basset, 7 to 7¼; Wheal Grenville, 15 to 15½; Wheal Kitty, 15s. to 17s. 6d.; Carn Brea, 3½ to 3⅝. One o'clock tin, 94½.

MANCHESTER.—Messrs. JOSEPH R. and W. P. BAINES, stock and share brokers, Queen's Chambers, Market-street, write under date, November 19:—The past week has been one of great activity throughout the stock and share markets, the chief attention, however, being engaged in American rails, in which numerous fluctuations have occurred, finishing, however, with a decided gain for the week in most instances. On Friday last buying was the prevailing feature throughout, though, as regards Americans, they did not participate in a marked degree till late in the day. On Saturday, on the announcement of declaration of war by Servia, the markets broke down all round, and operators, who had been buying all before them, turned round, and selling became free, resulting in heavily depressed quotations becoming general; but some recovery from worst points was observable in some English rails. Monday opened flat, but as the Servio-Bulgarian struggle furnished nothing further startling, a rally set in, and some good progress was made in values. Since then, although there have been periods of lull and slight giving way, quotations for home railway stocks have been either steady or better, traffics being taken to give no cause for depreciation of prices, and to-day a further decided gain is recorded. The news re Servia and Bulgaria naturally had a telling effect on the market for Government loans and bonds, the first influence being, of course, found on the adverse side; but as events have developed, and the possibility of the conflagration spreading to an extent warranting alarm has been debated, it seems to have been viewed with less fear as time went on, and consequently recovery from lowest points has to be noted. Consols underwent changes indicated, and on balance are ¼ down on the week. Foreign loans are mainly better, foremost amongst which are Peruvians Argentine Hard Dollar Bonds and Brazilian (1875) Loan, Egyptian Unified, Portugese, Spanish, and Mexican (1851) fractionally higher. Russians and Turkish (Group 4) both a little lower, the former having been decidely down on first outbreak of hostilities named above. Colonial stocks are unchanged. Home Corporation stocks mostly better, the only case of decline being in Liverpool Three-and-Half per Cent., which are ¼ down, whilst Leeds Four per Cent. is ⅛ to 1. Manchester Four per Cent, and Bradford Four per Cent. ⅛ each higher. The miscellaneous classes have a good record of changes in quotations, all kinds marking favourable movement, with no counterbalancing declines worth naming.

BANKS report a moderate number of transactions, and quotations very slightly altered; but where change is made it is tending upward.

INSURANCE shares do not change much here; but the balance of revision of values is for the better, though the actual alterations are but fractional.

COAL, IRON, &c., and MINING.—Coal shares neglected, some iron concerns have made decided advance, notably Bolckows and Ebbw Vales. In mines, copper concerns have been heavily bought, and some extraordinary prices have been realised. Whilst this has been going on some gold mines have lost a portion of recent advance therein.

COTTON SPINNING, &c., share market keeps dull on the whole, though the last day or two have shown some little better enquiry in a few instances.

TELEGRAPHS AND TELEPHONES, though not producing many dealings here, are all better where change is marked.

MISCELLANEOUS.—Hudson's Bay, Suez Canal, and Anglo-American Brush Electrics all distinctly and several other fractionally higher.

RAILWAYS.—After suffering more or less heavily on war news buying has been renewed, and prices exhibit many instances of decided enhancement for the week. Americans generally better. Denvers, Erios, and Wabash issues being conspicuous on the rise, though these in common with most others show considerable reduction from best points touched during the week. In Canadian Trunks have a similar record. Mexican rails steady at or near best points of the week.

NEWCASTLE-ON-TYNE.—Mr. S. N. CHALLONER, stock and share broker, 62, Grey-street, writes under date November 19:—Coal, iron, and copper shares are generally firmer. Barrow Steel Ordinary are ½ higher at 4½ to 5; ditto Six per Cent. Preference ½ at 7½ to 7⅞; Bolckow (20l. paid) 2 higher at 17½ to 17⅝; ditto 12l. paid ⅜ higher at 8¼ to 8½; ditto Five per Cent. Preference unchanged at 19 to 19½; C. Cammell and Co. at 76¼ to 77¼ unchanged; Consett Iron ¼ higher at 17½ to 18; Consett Spanish Ore are 4½ to 4⅞; Darlington Iron, 22s. to 30s.; ditto Preference, 4 to 4½; Earle's Shipbuilding, 15½ to 16; Ebbw Vales, 1¼ higher at 5⅞ to 6; John Brown, ¼ lower, 65½ to 66¼; Palmer A remain 20½ to 21; ditto B ¼ higher at 13 to 13¼; Pelsall Coal are 5 to 6; Rhymney Iron Ore are 25s. to 30s.; ditto New, 7s. 6d. to 10s.; Sir W. G. Armstrong, 139 to 141, are unchanged; Teesside Iron, 8s. to 10s.; ditto Preference, 25s. to 27s. 6d.; Tharsis ½ higher at 98s. to 100s.; West Cumberland Iron firmer at 3 to 3¼, business done at 3⅛ to 3¼; Mason and Barrys, 9 to 9¼; Panulcillo Copper, 3¾ to 3¾; Rio Tinto, 11⅛ to 11¼.—Gas and Water: Hartlepool Gas and Water, A, are 6¼ to 8¼; B, 7½ to 7¾; C, 7¾ to 7¼; Newcastle Water Original, 200 to 204; ditto Five per Cent. Preference, 129½ buyers; North Shields Water, 35 to 36.—Miscellaneous: Gateshead Trams are 3½ to 3⅝; High Gosforth Parks, 12 sellers; Langdale's, 2½ to 2⅝, x.d.; Lawes, 4½ to 4¾; Newcastle Chemical, 21s. to 22s. 6d.; Sadler, B, 9 to 10; C, 4½ buyers.

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, stockbroker and ironbroker, under date November 19 writes:—During the past week the markets have been more active, and prices have advanced on hopeful trade views. A temporary check was caused by the declaration of war by Servia against Bulgaria; but as it is not expected this country will have cause to interfere, the tendency is again very favourable. The money market is unaltered.

In shares of coal, iron, and steel companies prices have all advanced, especially Bolckow Vaughan, Clyde Coals, Ebbw Vales, Marbellas, and Steels. Bull's, Iron, 6s. to 7s; West Cumberland, 3¼.

In shares of foreign copper concerns a large business has been done, and prices show large advances, especially Cape, Mason and Barry, Panulcillo, Rio Tinto, and Tharsis. Tharsis have advanced from 81s. 6d. to 84., and Rio Tintos from 9¼ to 12⅝. Bratsbergs are at 11s. to 13s.; Canadians, 4s. to 6s; Russia, 2s. 6d.; Tocopillas, 5s. to 7s. 6d.; Yorke Peninsula, 1s. 3d. to 2s. 6d.

In shares of home mines prices are steady. Glasgow Carndon have improved from 2s. to 4s.; the sale of this company to-day will be 23 tons, which compares favourably, so far as quantity is concerned. Coed-y-Fedw are at 3s. 9d. to 5s., and the shares seem worth attention at such low prices. There are three important points to come off in the mine soon, and the difficulty with water has been arranged. The company's meeting is in January. Andertons are at 2s. 6d. to 5s.; Drakewalls, 3s. to 5s.; East Blue Hills, 27s. 6d. to 32s. 6d.; Holywell District, 8s. 6d.; Leadhills, 40s. to 45s.; New Trumpet, 8s.; North Treskerby, 9s.; Shepherds United, 2s. to 3s.; West Polbreen, 10s. to 12s. 6d.; Wheal Crebor, 32s. 6d.

In shares of gold and silver mines much business continues to be done. Montanas have improved from 51s. 6d. to 59s. 6d. Richmonds and United Mexicans both higher. Akankoo, 1s. to 2s.; Almada, 5s. 6d. to 6s. 6d.; Balkis Consolidated, 3s. to 5s.; Californias, 4s. to 5s.; Chuntales, 2s. to 3s.; Denver, 1s. to 2s.; Don Pedro, 3s. to 4s; Devals Moyar, 6s. to 7s.; Eberhardt, 3s. to 4s.; Glenrock, 6s. to 7s.; Hoover Hill, 6s. to 9s.; Indian Consolidated, 14s. to 16s.; Kohinoor, 1s. 6d. to 2s. 6d.; Javali, 2s. to 3s.; Kapanga, 6d. to 1s.; Kimberley North Block Diamond, 25s. to 3 s.; La Trinidad, 80s. to 85s.; Mysore, 70s. to 75s.; La Plata, 6s. to 7s.; Nine Reefs, 7s. to 7s. 6d.; Nouveau Monde, 3s. 6d. to 4s.; Oceregum, 14s to 15s.; Organos, 30s. to 35s.; Santa Barbara, 27s. 6d.; Sao Vicente, 1s. 6d. Tecoma, 1s. 3d.; Tambrachierry, 7s. to 8s.; Victoria, 3s. to 4s.; and Violeta, 24s. to 25s.

In shares of miscellaneous companies prices have also advanced. Lanark Oils exceptionally declined to 34s. on unfavourable reports, but are now a little firmer. Other oil companies are generally better on the improvement in the American market. Home Mines Trust, 12s. 6d. to 13s. 6s.; Lawes' Chemicals, 4¾ to 5¼; Nobel's Explosives higher, at 17¼ to 17½.

EDINBURGH.—Messrs. THOMAS MILLER and SONS, stock and share brokers, Princes-street, write under date November 18:—The stock markets have been strong since last report, and although prices got a temporary check on the outbreak of war between Servia and Bulgaria they soon rallied. In home railways both ordinary and preference stocks have been advancing. Canadians and Americans have made a great rise. Bank stocks have not as a whole been affected, but Clydesdale have risen from 20¼ to 22, Commercial from 55 to 56, and Union from 21 to 21¼. Canada North-West Land have gone from 42s. 3d. to 47s. 3d., Hudson's Bay from 20 to 21¾, Prairies from 90s. to 97s. 6d. Copper shares have come into demand, on the rise in the price of the metal. Arizonas have advanced from 9s. to 12s. 6d., Rio Tinto from 8¾ to 11¾, Tharsis from 79s. 6d. to 99s. Marbella Iron have risen from 45s. to 62s., Mysore Gold from 70s. to 75s. 6d. Burntisland Oil have risen from 17¾ to 18, Pumpherston from 10 to 10¼. Lanark have receded from 42s. to 36s., West Lothian from 7½ to 7, Youngs from 11 3-16th to 11⅛.

THE COPPER TRADE.

Messrs. HARRINGTON, HORAN, and Co., Liverpool, write under date November 17:—Chill copper charters for first half of this month were advised yesterday as 1600 tons fine. Valparaiso exchange is given as 25d. When we last wrote bars were selling at 39l. 8s. 9d., and price receded until 38l. 19s. was touched. A reaction then set in, and the advance continued until 41l. 1s. 3d. was reached for sharp cash and 41l. 12s. 6d. for three months' prompt. The market to-day is firm at the highest prices paid. A further contract has been concluded with English smelters (on private terms) for the shipment of about 2000 tons Anaconda matte per month during September, October, November, and December. The sales of furnace material comprise:—At Liverpool—100 tons Chilian regulus at 8s., 142 tons Italian ore (to arrive) at 7s. 6d., 100 tons Portuguese at 7s. 9d., and 160 tons at 7s. 10½d. per unit. At Swansea a cargo of Cape ore (to arrive) at 7s. 9d., 300 tons Bolivian regulus, ex Prince Alfred, at 7s. 6d., and 200 tons Libiola ore at 7s. 9d. per unit.—Precipitate: 200 tons Gueva de la Mora at 7s 9d., 75 tons English at 8s. 1½d., 25 tons at 8s. 3d., and 281 tons Mason's Spanish at 7s. 10½d. per unit. Import of Chili copper from 1st to 16th November 2059 tons fine, against 1178 tons fine same time last year. Delivery of Chili copper from 1st to 16th November 1313 tons fine, against 1084 tons fine same time last year. Import of other copper from 1st to 16th November 2524 tons fine, against 1466 tons fine same time last year. Delivery of other copper from 1st to 16th November 3154 tons fine, against 1434 tons fine same time last year. The total imports of Chili and other copper into Liverpool and Swansea from the 1st of January to 16th November were 70,737 tons; deliveries during the same period, 64,271 tons fine; for same time last year the figures were 64,265 and 70,162 tons respectively. Arrivals here from the 1st to 16th November of West Coast, S.A., produce:—Valparaiso, from Valparaiso, &c., 20 tons regulus, 214 tons bars, and 80 tons ingots; Laurium, from Valparaiso, &c., 200 tons bars. —At Swansea: Beta, from Lota, 710 tons bars; Carmelita, from Lota, 837 tons bars. Stocks of copper (Chilian and Bolivian) in first and second hands on 16th inst. likely to be available, we estimate at—

	Ores.	Regulus.	Bars.	Ingots.	Barilla.
Liverpool	10	1,409	26,038	120	—
Swansea	—	1,746	6,160	—	—
Total	10	3,155	32,198	120	—

Representing about 33,740 tons fine copper, against 33,003 tons 30th ult.; against 23,082 tons November 14, 1884; against 27,733 tons November 15, 1883; against 22,671 tons November 15, 1882. Stock of copper contained in other foreign ore and Spanish precipitate on 16th inst., 5174 tons fine, against 4638 tons November 14, 1884.

ENGLISH v. BELGIAN STEELMASTERS.

Unalloyed satisfaction will be occasioned throughout the steel industry by the announcement which has been made by the Midland Railway Company of the result of their second application for a supply of 5000 trial steel sleepers. That the Tredegar Iron and Steel Company, who have got the order, should have succeeded in so quickly reversing the fortunes of the Belgians is complete evidence of what can be done by our steelmasters in this matter when they once make up their minds to have the trade. The experience which the Welsh firm have gained from their manufacture of steel sleepers for the State Railways of the Indian Empire has served them well. Inasmuch as they have accepted a price considerably below that asked by the Belgians, it is to be assumed that they can now see their way to turn out sleepers at a profit upon comparatively easy terms. The business is not, however, to be confined to Wales alone. In West Cumberland and at the Eston Works of Bolckow, Vaughan, and Co. considerable quantities of sleepers are being turned out with every satisfaction, and preparations are being made in the Darlington district to also quickly go into the trade, with a determination to keep at home contracts which have hither gone to the Continent.

It is not to be expected that anything like an instantaneous transformation will take place regarding the quarter of a million sterling which is now spent annually by our home companies upon timber sleepers, and that that amount will at once find its way into the pockets of our steelmasters. Yet it may be taken for granted that such transferance will be effected steadily now that it has once begun. Our steelmasters are, therefore, wholly wise in losing no time in their preparations for putting themselves into form for executing this and other similar business which may be confidently anticipated on account of foreign railways. Steel sleepers are destined to play an important part in assisting to keep active English works which have hitherto been dependent for their engagements mainly upon steel rail orders. The additional employment which is foreshadowed in this direction is occasion for the liveliest gratification. Belgian and German steel sleeper makers must look to their laurels..

SHROPSHIRE LEAD MINES.

SIR,—The fact that Roman Gravels Mine continues to turn out well and give a profit, and that Snailbeach Mine is improving splendidly, go to show that there are worse investments than Shropshire lead mines, and with labour and all materials at little over half the price they were when lead was at the highest, we cannot see why mines cannot be worked about as profitably now as then. Certain privileged canvassers in this district are putting all the fault of the low price of lead on the Liberal Government, and that if the miners do not help to send up a Conservative one certain mine will be stopped, and, by-the-bye, who has more reason to fear such a result than the agents who are using this argument? "But Yeddert, tha myner, says aun tha think as us anna got no braains tha bin oney trien to fritten us, cos the work stoppin hood be worse for them nor for us, for tha gotten a nicer doner we don au tha dunna get a good a do as a finust, beside whos gween to stop a worn hoth sixfut afore to get at, and Yeddert says as throin doust in myner's face, and tryin trew him a this way onna be tha same as drivin levels, and gettin the ore the cheppest way."

YEDDERT'S NABER.

HALF-PRICE—ONE SHILLING POST FREE.

A few copies with the covers slightly soiled of the

ENGLISH AND FOREIGN MINING GLOSSARY: To which is added the SMELTING TERMS used in FRANCE, SPAIN, and GERMANY.

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THE ALMADA AND TIRITO CONSOLIDATED SILVER MINING COMPANY (LIMITED).

IN LIQUIDATION.

Notice is hereby given, that a GENERAL MEETING of the shareholders of the above company will be HELD at 47, Finsbury Circus, London, E.C., on TUESDAY, the 1st day of December, 1885, at Two o'clock precisely, for the purpose of having an account laid before them by the Liquidators, showing the manner in which the winding-up of the above company has been conducted, and the property disposed of, and of hearing the explanation of the Liquidators relative to such account and winding-up.

WM. MARTINEAU, } Joint
B. D. KERSHAW, } Liquidators.

Dated this 28th day of October, 1885.

V. R.

SALE BY ORDER OF THE SECRETARY OF STATE FOR WAR.

MESSRS. HORNE, SON, AND EVERSFIELD, 17, Great George-street, S.W., WILL SELL, BY PUBLIC AUCTION, at the Royal Arsenal, Woolwich, on TUESDAY, 24th November, 1885, at Eleven o'clock in the forenoon precisely, the following

SURPLUS and UNSERVICEABLE STORES, viz.:—

About 6 tons of PRESERVED POTATOES, in cases and tins.
LEAD; STEAM BOILERS.
20,000 pairs of new HORSE SHOES.
Old FILES, &c.; old ZINC.
Old cast and wrought iron SCRAPS.
LEAD and FOUNDERS' ASHES.
Old STEEL; Old BLANKETS & RUGS
SERGE CUTTINGS; OAKUM.
POUCHES; BELTS.
Old BUFF and BLACK Accoutrements
GUNNY BAGGING; HAIR (horse).
PAPER CUTTINGS, CANVASS, JUNK
HARNESS; WHEELS.
CARTS; LEATHER.
STAVES; BARRELS.
TIMBER; MAHOGANY.
FIREWOOD; CASES (wood), &c.

The lots may be viewed from Ten to One o'clock, and from Two to Five o'clock on the Thursday, Friday, and Monday previous to and on the morning of the day of sale; and catalogues may be obtained at the War Office, Pall Mall; at the Ordnance Office, Tower; and at the Ordnance Office, Royal Arsenal, Woolwich.

SECOND HAND MACHINERY FOR SALE:—
ONE 20 horse power semi-portable ENGINE; loco boiler; ONE Hall's multiple action STONE BREAKER, 21 inch×10 inch; ONE 30 inch CRUSHER complete; ONE 20 inch crusher; DRESSING MACHINERY, consisting of two self acting jigging machines with four compartments; four ditto with three compartments; two ditto with two compartments; self acting classifiers and feeding apparatus; six round buddles; two very substantial sheds for buddles and jigger houses; complete rock drilling plant; 60 feet diameter water wheel ×3 feet breast; one 40 feet ditto×3 feet 6 inch breast; two 28 feet ditto× 3 feet 6 inch breast. Within 2½ miles of railway station, and convenient for removal.

Very powerful crusher, rolls 30 inch×16 inch wide will crush 8 tons per hour, all modern improvements; ditto, rolls 24 inch×15 inch; self-acting feeding hopper to each; Shield's Patent turbine, 20 inch×14 inch wheel, with 20 inch diameter inlet and outlet; vertical boiler, 9 feet 5 inches high×3 feet 2 inches diameter with 30 2¾ inch tubes, and fitted with Green's Patent Water Hearth instead of fire bars; second hand vertical boiler, 4 feet 6 inch diameter, 10 feet high, fitted with 59 2¼ inch tubes; shell and fire box in excellent condition, shell ⅛ inch thick, vertical seams, double rivetted; two new four compartment self-acting jigging machines; table engine, 9¾ inch cylinder, 2 feet stroke, very strong in all the parts and equal to new.

Apply,— GEORGE GREEN, ABERYSTWITH.

TO IRONMASTERS, IRON ORE MERCHANTS, AND OTHERS.

EASTER HEMATITE MINE GALE, situate near to Coleford, Forest of Dean, Gloucestershire. The LEASE of this VALUABLE MINE TO BE SOLD, BY PRIVATE CONTRACT, at a reasonable price, or LET subject to the payments under the lease and to the Crown royalty, &c. The machinery and plant, which are very efficient and in good working order, together with the offices and other erections, trams, loose plant, and effects, to be taken at a valuation.

This mine is capable of producing 150 tons of ore per day.

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TO DIAMOND MERCHANTS, SPECULATORS, AND OTHERS.
SHORT NOTICE.

In the High Court of Justice—Chancery Division.
"MONTEFIORE v. THE CAPE OF GOOD HOPE DIAMOND MINING COMPANY (LIMITED)."
VALUABLE DIAMOND CLAIMS, and 49 Acres in the Cape of Good Hope.
IN ONE LOT.

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In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACTS, 1862 to 1883, and of the WHEAL JANE MINING COMPANY.

TENDERS will be RECEIVED by the Registrar of the said Court, at his Office, in Truro, until WEDNESDAY, the 25th day of November instant, stating the HIGHEST PRICE which will be given for the WHOLE or PART of the undermentioned

MINING MACHINERY, MATERIALS, AND EFFECTS
Of and belonging to the said company, now at the Wheal Jane Mine, in the parish of Kea, within the said Stannaries, viz.:—

PUMPING ENGINE, 60 inch cylinder, 9 feet stroke, with 3 boilers, 10 tons each.

HORIZONTAL ENGINE, 2 8½ inch cylinders, 18 inch stroke, with iron bed plate, and iron steam capstan attached, with iron shaft and worm screw.

Wood house over the capstan and engine, stone breaker, 20 × 10 inch opening; 1 6 ton boiler with fittings, 2 flushets to ponds, upright launders, steam whim, 30 inch cylinder, 8 feet stroke, with fly wheel and cage, and 1 10 ton boiler; 8 inch pole, H piece; pumps, &c., 5 fathoms deep, attached to whim engine; Gilbert's steam whim, 24 inch cylinder, 7 feet stroke, with fly wheel and cage; crusher, with raft wheel attached; oak axle in crusher house, part of V bob and rod, dry tube, 35 feet long; wire rope, 3 settles, 2 tables, 2 barrels, lifting jack, about 3 cwts. old iron, smith's bellows, wood roller, anvil, wood folds, weighbridge house, several grates, flooring, pitman's house sumpman's house, brush, about 50 lbs powder, 2 boxes of caps, stable, with 2 mangers and screen, doors nearly new; ACCOUNT HOUSE FUNITURE, consisting of 1 slab, 9 chairs, earthenware and glass, tea trays, kettle, coal scuttle, round table, looking glass, dining table desk, register and 4 other grates, lamps, cupboard, and sundry small articles.

To inspect the above apply to the Bailiff in charge at the Mine; and for further particulars at the Registrar's Office.

JADDIS E. ARCHER, Truro
(The Solicitor having the carriage of the proceedings in the said Matter).

Dated Registrar's Office, Truro, 10th November, 1885.

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TO BE SOLD, BY PRIVATE CONTRACT, as a going concern, a COLLIERY in Glamorganshire, situated about midway between the shipping ports of Cardiff and Swansea, adjoining to and having commodious sidings in connection with the Great Western Railway system.

The mineral area is upwards of 500 acres, and is held from two landlords upon very favourable conditions, the Royalties being exceptionally low. The unexpired term of the leases is about 40 years.

There are two pits sunk on the property, both of which are fitted up with winding machinery, but only one is used at present for raising coal.

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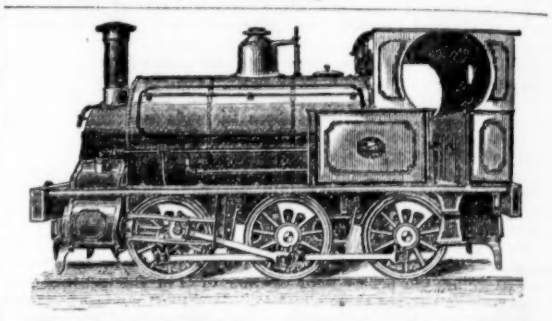

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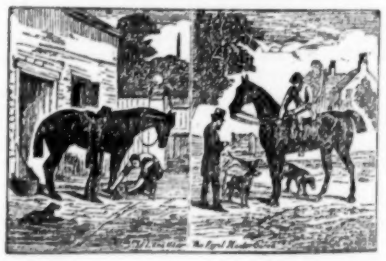

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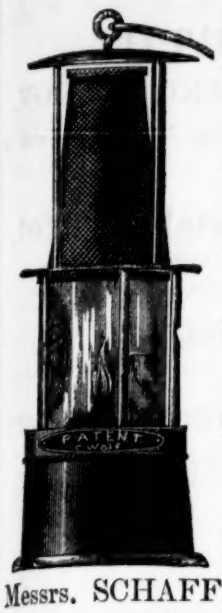

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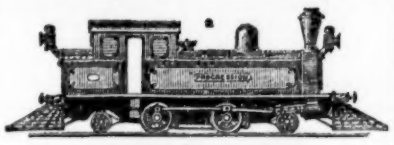

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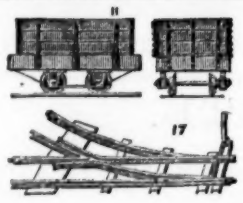

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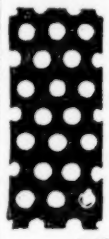

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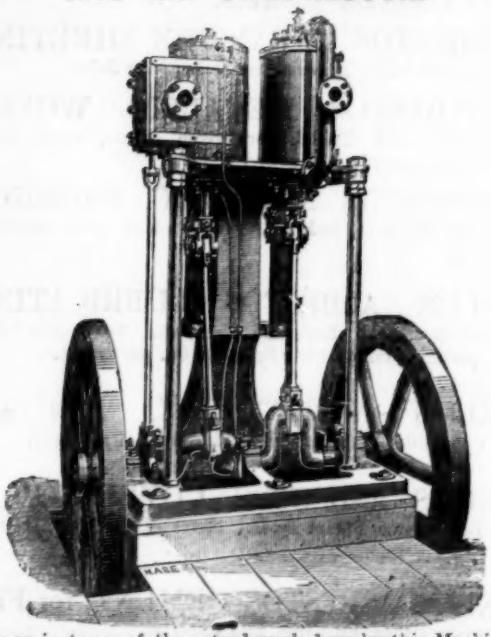

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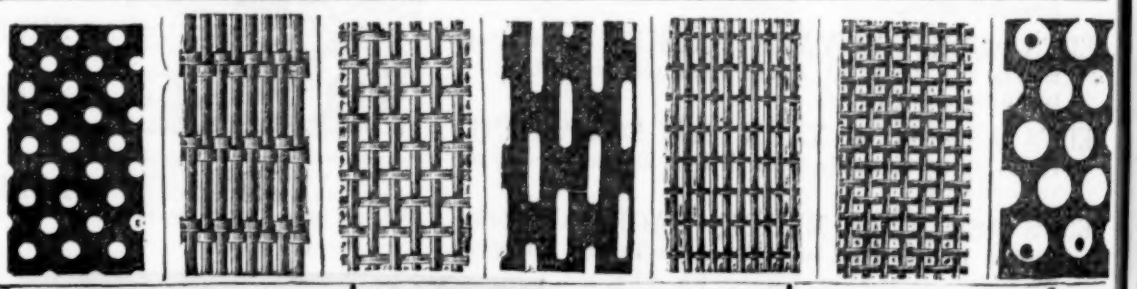

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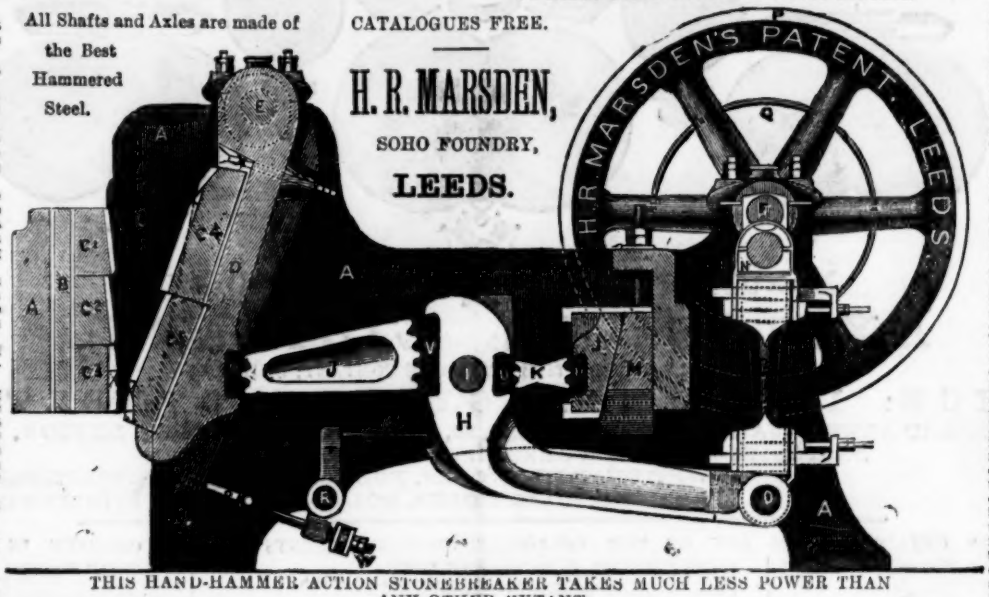

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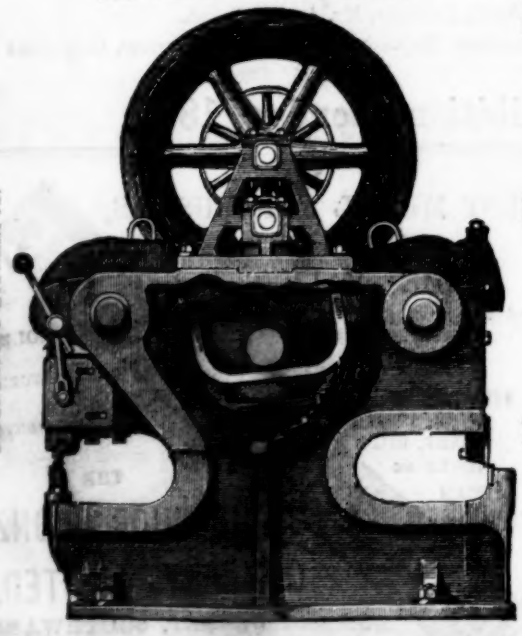

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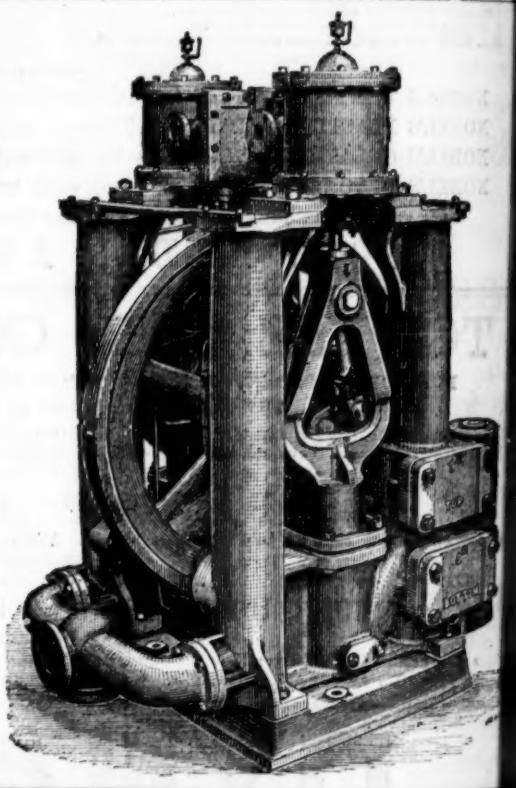

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